00110650

Digitized with financial assistance from the
Government of Maharashtra
on 18 July, 2018

& '&

3,)' 9)*-(*) ' 3-+0)*+(8;' 3*?'(*1+,-8+(<)' :-+' ./11(:24'(*' 1/7)' +0(*91'),,/*)/-1' +2(3*' :4' 322' +0)' /.)*' 3++38;1' /5'(*' 5(?)21' /,' +0)1)' .23-1(:2)' 1+3+)7)*+1' 2)3<)' -1' */' 1+3*?3,?' /5'+,-+0' 3*?'?-+4' */' 634' /5'?(18,(7(*3+(*9' :)+6))*' +,-)' ?/8+,(*)' 3*?' 0),)14' */' ?(<(*)24' 3../(*+)?')@0(:(+(/*' /5' +0)' 0,(1+(3.',)2(9(/*' 6(+0' 60(80' 322' /+0),')@0(:(+(/*1' 7-1+' :)' 8/7.3,)?' 3*?' 3?7(++)?' /,',)')8+)?' 31' +0)4' 39,))' /,' ?/' */+' 39,))' 6(+0' (+

' +0)' 8+1' /5' +0)' ./1+2)1' 3' 0(1+/,4' /,' 1.)8(7)' (1'=<)*' /5' +0)' 73**),' (*' 60(80' +0)'3./1+2)1' 3*?' +0)(,'5)22/6%' 23:/-,),1'5-25(22)?' +0)'5/,7),' .3,+' /5' +0)(,',(,1)*' /,?"1' 8/77(11(/*' 9(<)*' +/' +0)7' '-1+' :)5/,)' 0(1' 318)*1(/*' 0' /' 0'4)' +0),)5/,)' 3*?' +)380' 0/,'73;)' ?(18(.2)1' /5K' M' 322' *3+(/*1' :3.+(S(*9' +0)7' (*' +0)' *37)' /5' +0)' 3+0),' 3*?' /5' +0)' /*' 3*?' /5' +0)' /24' 0/1+N' *' +0)').(1+2)1'(1' 7/,)' 5-224' 10)6*' +0)' .3,+(8-23,1' 3*?' +0)' 634' (*' 60(80' +0)4')@)8-+)?' +0)' 23++),' .3,+' /5'(+' M')380(*9' +0)7' +/' /:1),<)' 322' +0(*91' 603+1/)<),' ' 03<)' 8/773*?)?' 4/-' ' @@<(((' I' E ' ' @<(' H> K' 0)' 5/,7),' +0),)5/,)' (1' 7/,)')@38+24'1-(+)?' +/' +0)' 831)' /5' 7(11(/*3,()1' 3*?' .),1/*1'(*' 1(7(23,'8(,8-71+3*8)1'B' +0)' 23++),' +/' 1+3+(/*3,4' .31+/,1'3*?' +0)(,'52/8;1' 31' 53,'31' +0)4'3,)' +,-)' :)2()<),1' /+0' 0/6)<),' 3,)')11)*+(3224',)C-(1(+)' +/' 3*' 388-,3+)' 3*?' 8/7.,)0)*1(<)' <()6' /5' 0,(1+(3*(+4' 3*?' /5' +0)' /55(8)' 3*?' ?-+()' /5'(+1' 7(*(1+),1

0)' .)8-2(3,'?/8+,(*)1' /5'+(()' 9/1.)2' 3,)' 0),)' 7/,)')@.2(8(+24' 1+3+)?' 3*?')@.23(*)?' 3*?' +0)(,'.,38+(832' +)*?)*84' 7/,)' &)# 10)6*' +03*' (*' +0)' 0(1+/,(832' :///;1' 0)' ?(1+(*9-(10(*9' +,-+01' 0),)' 23(?' ?/6*' 03<)' :))*' ;).+' (*' <()6' +0,/-90' +0)' 60/2)' /5' +0)' .,)8)?(*9')@./1(+(/*' 3*?' (+' 6(22' +0),)5/,)' :)' -**)8)113,4'5/,7322'4' +/' 3*16),' +0/1)' 60/' 03<)')*?)3</-,)?' +/',)8/*8(2)' +0(1'.3,+' /5' +0)' 18,(.+-,)' 6(+0' 141+)71' /5' 3' 8/*+,3,4'*3+-,)' 3*?' +)*?)*84' +' 734' 0/6)<),' :)' .,/.),' +/' 134' +03+' +0)' 3-+0/,' 031' 8/*1(?),)?' 6(+0' 7-80' 3++)*+(/*' :/+0' ,' 342/,"1' ;)4' +/' +0)').(1+2)' +/' +0)' /73*1' 3+,?' +0)')7(*)*+' ,' /8;)"1' 8/77)*+' /*' 1)<),32' /5' +0)').(1+2)1' ' -+' ?)).24' 8/*<(*8)?' +03+' :/+0' /5' +0)1)' .-:2(83+(/*1' M' ?3,;)*' 8/-*1)2' :4' 6/,?1' 6(+0/-+' ;*/62)?9)N' 0)' 83*' /*24' /*' 1/7)' (*8(?)*+32' 73++),1' ?)?-8)' (*1+,-8+(/*' 5,/7' +0)7' *' 9)*),32' (5' +0)' <3,(/-1' +),71' -1)?' (*' 18,(.+-,)' 8/*8),*(*9' 1,3)2' 31' 3' *3+(/*' :)' (*' +0)' 137)' /,' *)3,24' +0)' 137)' 1)*1)' +/' :)' 3..2()H' +/' 0,(1+(3*1' -*?),' +0)')6')1+37)*+' 60),)' (1' +0)' +4.)' 3*?' +0)' 3*+(+4.)D' 0),)' (1'M' +0)' +,-)' 1,3)2N' 31' ?(1+(*9-(10)?5,7' M' 1,3)2' 35+),' +0)' 52)10'D'N' *?' 60),)' 3,)' 6)' +/' 2)3,*')(+2(),' +0)' 803,38+),' .,(<(2)9)1' /,'?-+()1' /5'+,-)' :)2()<),1'D

)<),32' /5' +0)').(1+2)1' 6),)' 6,(++)*' /*' 1.)8(32' /8831(/*1' :-+' /+0),1' 6),)' */+' 0)1)' 1.)8(32' /8831(/*1' 0/6)<),' 6),)' /5' 1?80' 3' *3+-,)' 31' 93<)' +0)' 7/1+' 53</-,3:2)' /../,+-*(+4' 5/,')@.23(*(*9' ?/8+,(*)1')*5/,8(*9' .,)8).+1' 3*?' 9(<(*9' 3?7/*(+(/*1' 3*?' 8/-*1)21' /5' +0)' 9,)3+)1+' (7./,+3*8)' +/' +0)' 80-,80' /5' 0,(1+(*')<),4' 39)' /,' 031' 3*4' +0(*9')<),' 4))*' :))*?)<(1)?' 7/,)' 1-(+)?' +/',)*?),' +0)' 6/,?' /5' /?' /5?*/')55)8+N' +03*' +0)' */+(/*' +03+' 6)' 03<)' 2(++2)' /,' */+0(*9' +/' ?/' 6(+0' +2((1' 3*?' +0)' /+0),' .3,+' /5' 18,(.+-,)' 3*?' 83*' 8/*82-?)' */+0(*9' 9)*),32' 5,/7' (+' :)83-1)' (+' 631' M' 6,(++)*' /-' 3' .3,+(8-23,' /8831(/* N

)' :)9(*' 6(+0' +0)').(1+2)1' /5' +0)' 3./1+2)' #3-2' 60/' 6,/+)' 31' 6)22' 31' 23:/-,)?' 7/,)' 3:-*?3*+24' +03*' 322' 0(1' :,)L +0,)*' /-,+))*' /5' 0(1').(1+2)1' 3,)' ,)1),<)?' 585,'/-,' (*1+,-8+(/*' *' 322' 0(1' 6,(+(*91' 6)' .),8)(<)')<(?)*+' .,/51' /5' 31/-*?' '-?97)*+' 3' +32)*+' 5/,' 82/1)' ,)31/*(*9' 3' 2(<)24' (739(*3+(/*' 3*?' 5),<)*+' 355)8+(/*1' 1/7)+(7)1' 4)+' */+' 1/' /5+)*' :4' 53,'31' 73*4' 03<)' 1-../1)?' 0)' (*?-8)1' 3' 7)31-,)' /5' /:18-,(+4' :4' 2/*9' .3,)*+0)1)1' 22' *1' 3:(2(+()1' 3*?')*?/67)*+1' 0/6)<),' 6),)' ?(,)8+)?' 3*?' 1-.),(*+)*?)?' :4' +0)' .(,(+' /5'(*1.(,3+(/*

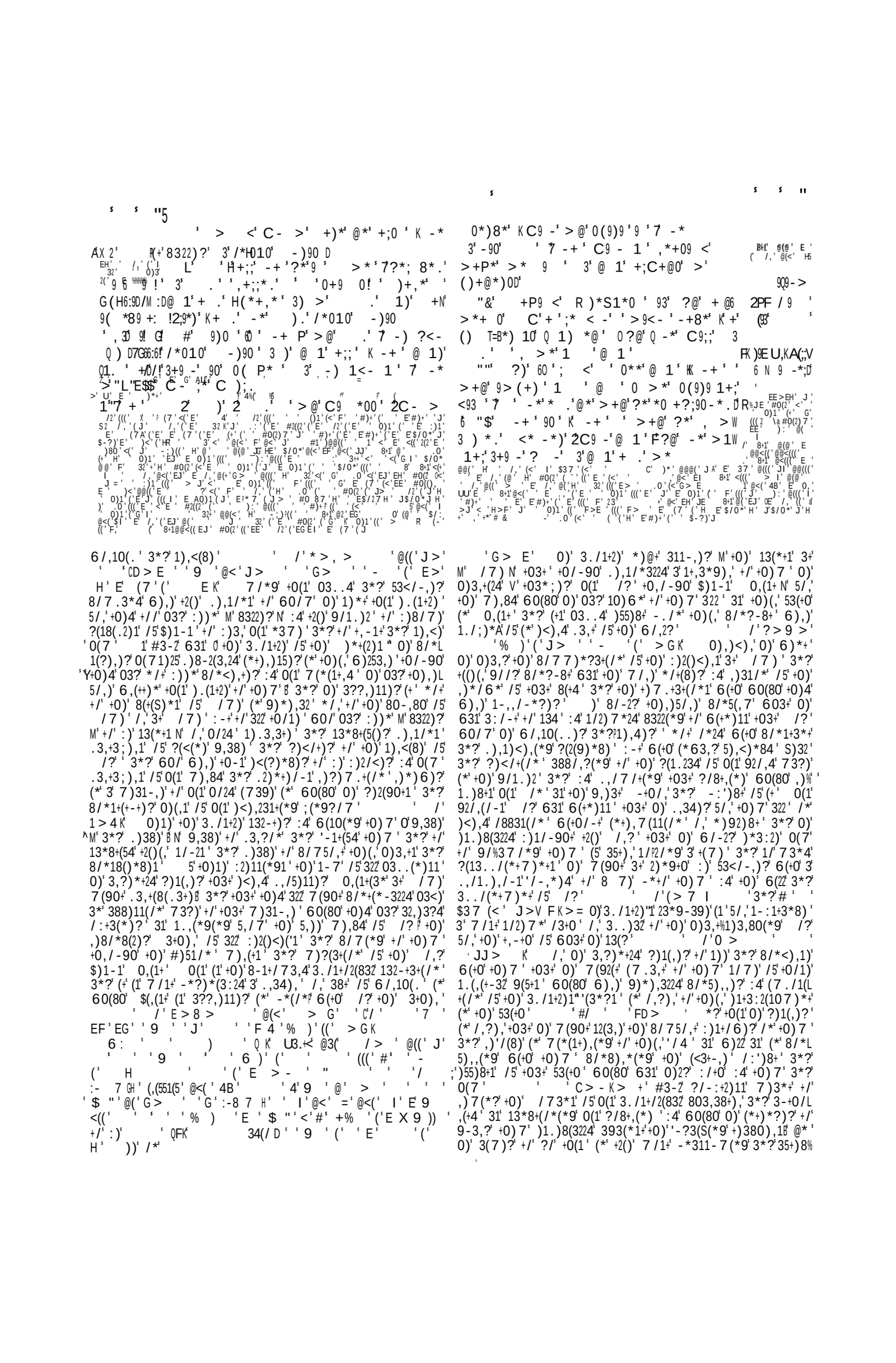
0)').(1+2)' +/' +0)' /73*1'(1'.238)?' 5(,1+' +0/-90' 1/7)' /+0),1' 6),)' 6,(++)*' :)5/,)' (+B' :-+' (+' T<31'3??,)11)?' +/' +0)' 0,(1+(3*1' 60/',)1(?)?' (*' +0)' 83.(+32' 8(+4' /5' +03+' 9,)3+')7.(,)' 60(80' +0)*' 2/,?)H' (+' /<),' +0)' 60/2)' ;*/6*' 6/,2?' 3*?' +0)').(1+2)'(+1)25'(1'/*)' /5' +0)' 2/*9)1+' 3*?' 7/1+' 8/7.,)0)*1(<)' /5' 322' +03+' 6),)' 6,(++)*' :4' +0)' 3./1+2)' +' (1'*/+' ;*/6*' 60)*' /,' :4' 60/7' +0)' 9/1.)2' 631' 5(,1+' .,)380)?' 3+' /7)' ' :-+' (+(1'8/*')8+-,)?' +03+' (+' 631' 83,,()?' +0(+0),' :4' 1/7)' /5' +0/1)' $)<1' 60/' 6),)' 8/*<),+)?' 3+' 0)' ?34' /5' #)*+)8/1+' 1' ((' K #3-2' 0/6)<),' 03?' */+' 4)+' <(1(+)?' +03+' 8(+4' :-+' 31' 0' +0)' 3./1+2)' /5' +0)')*+(2)1" 0)' ?))7)?' (+'.,/.),' +/' -1)' +2((1'7)+0/?' /5')1+3:2(10(*9' +0)' :)2()<),1'(*' +0)' 53(+0' 3*?' /59(<(*9' +0)7' 1-80' 3' 8/7.,)0)*1(<)' <()6' /5' +0)' 0,(1+(3*',)2(9(/*' 31' 7(90+'.-+' +0)7' -./*' +0),('9-3,?' 393(*1' 5321)' +)380),1' /5' <3,(/-1?)18,(.+(/*1' >' 0(1').(1+2)' (1' +0)' /*24' .3,+' /5' +0)' 18,(.+-,)' (*' 60(80' ?(<(*)' +,-+0' (1' ?)2(<),)?' (*' 3' 141+)73+(832' 7)+0/?' 3*?' (+' (1' 3' .,/.),' 7/?)2' 5/,'3*4' /*?' 60/' (*+)*?1' +/' 8/7.(2)' 3' :/?4' /5' ?(<(*(+4' 5+),' +0)' (*+,/?-8+(/*' +0)' 3./1+2)' /.)*1' 0(1'1-:')8+' 031' (+' (1',)31/*3:2)' +/' :)9(*' 141+)73+(832' +,)3+(1)1K' :4' 10)6(*9' 73*'1' ,)23+(/*1' 3*?' /:2(93+(/*1' +/' /?' 0(1' ,)3+/,' 3*?' 0(1' 3./1+314' 5,/7' 0(1' 6/,10(.' 3*?' 1),<(8)B' 0)' .,/8))?1' +/' ./</)' +0)' -*(<),132' 1(*5-2*)11' /5' :/+0')*+(2)1' 3*?' $)61' 3*?' ++()' (7./11(:(2(+4' /5' 3*4' 73*'1' '-1+(54(*9' 0(71)25' :)5/,)' H'+/?' :4' 0(1' /6*' /:)?()*8)' 3<(*9' :,/-90+' +0)' 60/2)' 6/,2?' (*' 9-(2+4' ?)1),<(*9' /5' 6,3+0' 3*?' 10-+' -.' -*?),' 1(*' 3*?' 8/*?)7*3+(/*' 0)' ./8))?1' +/' 1+3+)' +0)' 7)+0/?' /5' 132<3+(/*' :4' +0)' 7),84' /5' /?' +0,/-90' +0)' ,)?)7.+(/*' /5' 0(1' /*' 3*?' +0)' 634' /5' '-1+(5(83+(/*' :4' 53(+0' 0(1' :2//?' 3*?' +0)' (7.-3+(/*' /5' 0(1' ,(90+)/-1*)11' 31' M' +0)' (9:+%' 0')/-1*)11' /5' /?' 60(80' (1'-*+/' 3*?' -./*' 322' +03+' :)2()<)N' P0(1'0)' .,/<)1'(22-1+,3+)1' 3,(?')@)7.2(5()1' <),4'5-224'B' 0)' *)@+' .,/8))?1' +/' 10)6'+03+' +0(1' 634' /5' '-1+(5(83+(/*' (1' 82/1)24' 8/**)8+)?' 6(+0' 13*8+(5(83+(/*' 3*?')<3*9)2(832' /:)L ?()*8)'B' 0)' +0)*' 1+3+)1' +0)' :)2()<),"1')@.),()*8)' 3*?' 8/*52(8+1' 3*?' ?(1.2341' :(1'803,38+),' 0/.)1' 3*?' .,(<(2)9)1B' 3*?' 3+' 2)*9+0' 0)' 2)3?1' /-,',)52)8+(/*1' :38;' +/' +0)' 1/-,8)' /5' +0)1)' :2)11(*91' (*' +0)' +),*32')2)8+(/*' 3*?' 1/<),)(9*' 2/<)' 3*?' 7),84' /5' /?' 3<(*9' +0-1' 1+3+)?' 3*?' ../<)?' ?/8+,(*)1' 3*?' 3*16),)?' /:')8+(/*1' +/' +0)7' 3*?' ?(18-11)?' 1)<),32' C-)1+(/*1',)1.)8+(*9' +0)' 8322(*9' /5' +0)')*+(2)1' 3*?' +0)' ,)')8+(/*' /5' +0)' $)61' 0)' 3..2()1' +0)' 60/2)' ?(18/-,1)' :4' 3' <3,()+4' /5'.,38+(832')@0/,+3+(/*1' .,)8).+1' 3*?' (*15,-8+(/*1')*5/,8)?' :4')<3*9)2(832' 7/+(<)1' *?' 03<(*9' +/-80)?' -./*' 1/7)' .3,+(8-23,1' 1-(+)?' +/' +0)' 8(,8-71+3*8)1' /5' +0/1)' +(7)1' 0)' 8/*82-?)1' 6(+0' 355)8+(/*3+)' 132-+3+(/*1' 83-+(/*1' 3*?' .,34),1' 3*?' 6(+0' 318,(:(*9' 92/,4' +/' /?' /-,' 3<(/-,

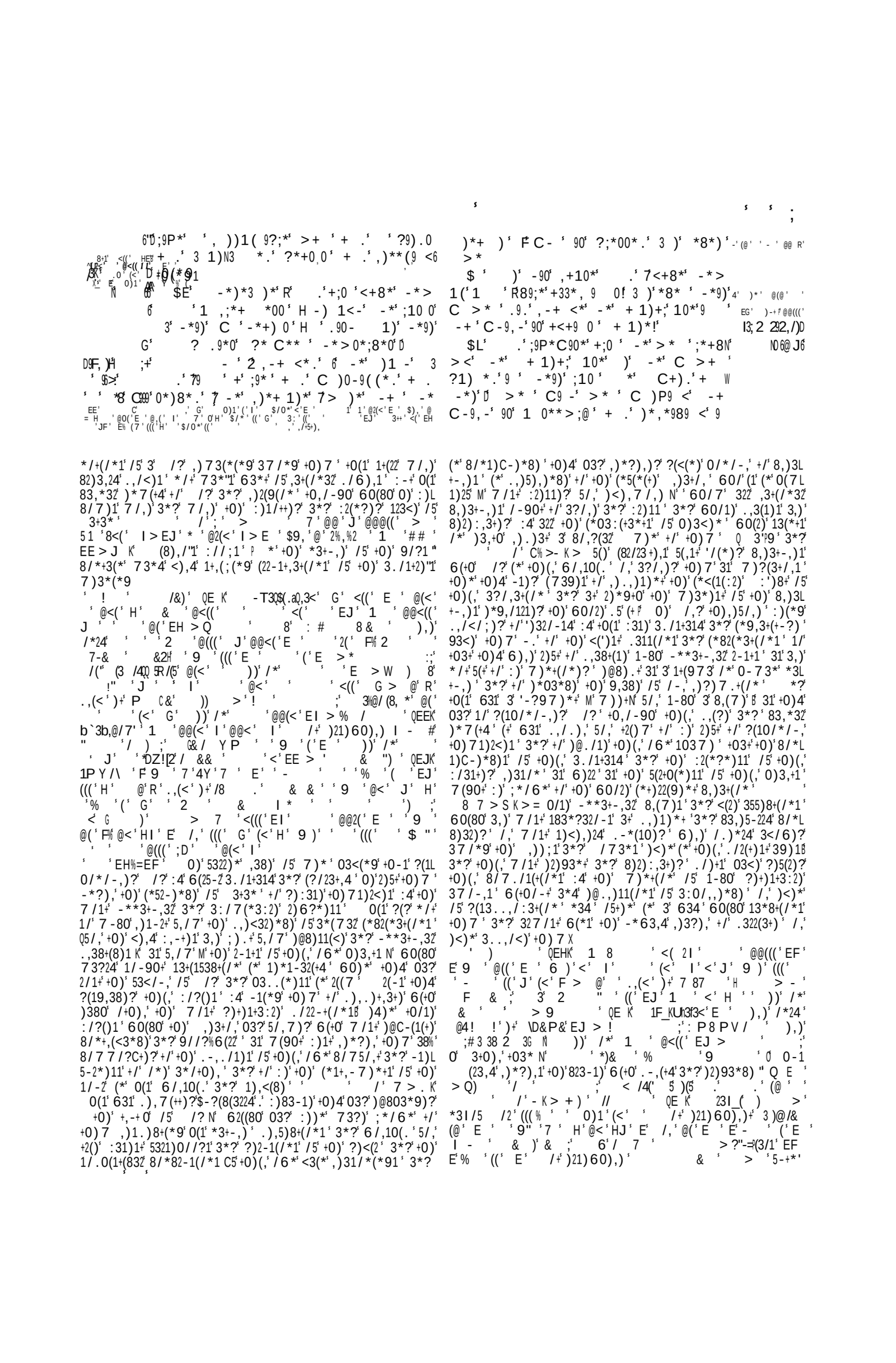
3ꞌ ,0@(((ꞌI ꞌ@@(#ꞌ
H ꞌ, @@ F J
@@5(ꞌ ꞌ H, @<2
:ꞌI U ꞌ
@<ꞌ 3./1?)ꞌ10)61ꞌ0(1ꞌ3./1+/2(8(?ꞌ3-+0/,(+4ꞌ3*?ꞌ+0)
R((=ꞌ /Dꞌ WŴ7(*(1+,4ꞌ > ꞌ)ꞌ132-+)1ꞌ+0)
(<ꞌ1ꞌ Rꞌ(ꞌ ꞌ 0,(1+(3*1ꞌ3+ꞌ /7)ꞌ ꞌF ꞌ+03*;(*)ꞌ /?ꞌ *ꞌ+0)(,ꞌ38%
(ꞌF ꞌ (+ꞌ (ꞌ8/-*+ꞌ3*?ꞌ.,(4(*9ꞌ5/,ꞌ+0)7ꞌ)1.)8(3224ꞌ+03+ꞌ0)ꞌ7(90+ꞌ
Eꞌ#++ꞌ(ꞌ+ꞌ(((?)ꞌ8/7)ꞌ3*?ꞌ.,)380ꞌ37/*9ꞌ+0)7ꞌG> ꞌ 0)ꞌ9/1.)2ꞌ(1ꞌ
@@((ꞌ XP ꞌ *ꞌ A +0)ꞌ./6),ꞌ /5ꞌ /?ꞌ+/ꞌ132<3+(/*ꞌ3*?ꞌ10)61ꞌ+0)ꞌ /*24ꞌ
ꞌ5@ꞌ 1X ꞌ5@((=5H ꞌ /5ꞌ-1+(5(83+(/*ꞌ2 ꞌ FAꞌ 22ꞌ7)*ꞌ /5ꞌ)<),4ꞌ*3+(/*
>(3Aꞌ(A /,ꞌ(X)@./1)?ꞌ+/ꞌ+0)ꞌ6,3+0ꞌ/5ꞌ /?ꞌ5/,ꞌ38+(*9ꞌ(*ꞌ /..1(%
Y =(($ꞌ =%+(/*ꞌ+/ꞌ+0)ꞌ2(90+ꞌ355/,?)?ꞌ+0)7ꞌ G>EJꞌ ꞌ-1+ꞌ:-+ꞌ
*ꞌA 3(? ?)18,(.+(/*ꞌ/5ꞌ+0)ꞌ9)*+(2)ꞌ6/,2?ꞌ31ꞌ9(<)*ꞌ-.ꞌ :4
>F9 +0)ꞌ-1+ꞌ?(1.2)31-,)ꞌ/5ꞌ /?ꞌ+/ꞌ+0)ꞌ9,/11)1+ꞌ(?/23+,()1
/+ꞌ (V(0E ꞌ+0)ꞌ7/1+ꞌ?)9,3?(*9ꞌ2(8)*+(/-1*)11ꞌ3*?ꞌ+0)ꞌ7/1+ꞌ3+,/%
((=XP ꞌ,3 ꞌ82/-1ꞌ(*(C-(+()1ꞌEH>JE
):ꞌ ꞌH ꞌ Z Z
4 ꞌ7"!ꞌ ꞌ7+ꞌ0*)8+ ꞌ3ꞌ/*010ꞌ -)90
0ꞌ ;:0,ꞌ @@(((0 6,+;;*.ꞌ ꞌ ꞌ+-ꞌ+(0;*ꞌ20*(+)+*.ꞌ
1 ꞌ6 -*ꞌ<0(*,ꞌ3ꞌ .
ꞌ ꞌ)ꞌ<((ꞌE ꞌ ꞌ)ꞌI ꞌ @<ꞌ ꞌEIꞌ@<(ꞌE ꞌ 3,;ꞌ ꞌ ꞌ -;)((ꞌ
ꞌ 8+1ꞌUUꞌEH ꞌ .0ꞌ! Jꞌ ꞌ 0)1ꞌ((ꞌEꞌ E 0)1ꞌ((ꞌ Jꞌ Hꞌ $ (7ꞌ(ꞌ

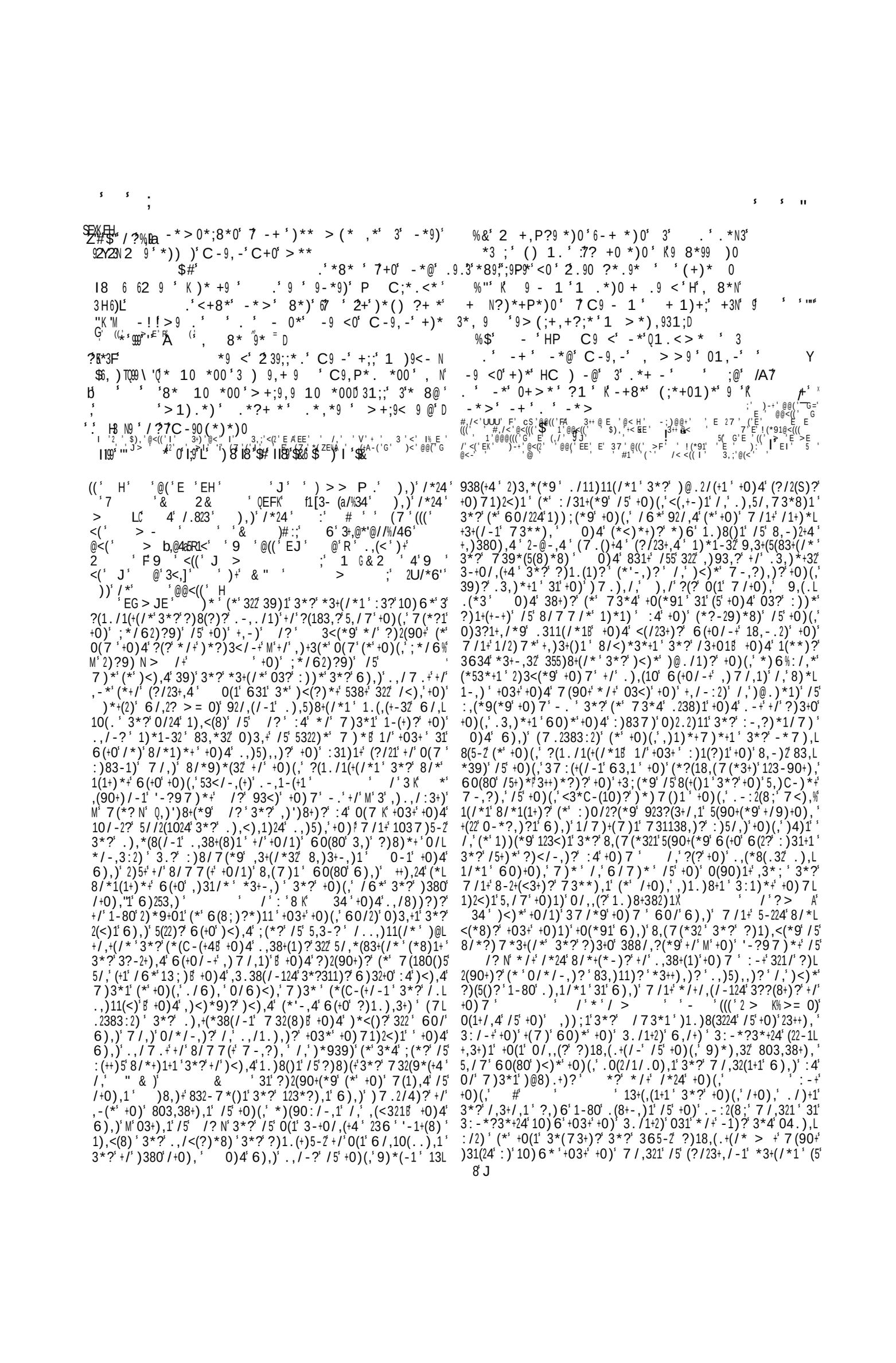
$ꞌ= -9,-ꞌ2-*ꞌ-+.ꞌ() >90*.ꞌ+3)*ꞌ3 2 ꞌ ꞌ 1ꞌ
?@ꞌ-90ꞌ() (-*0ꞌ9ꞌA-*ꞌ-;@ꞌ0,)9((1)*0Bꞌ 8+1ꞌUꞌ X@@<(A
%ꞌ ,*) 9 <ꞌ -90ꞌ ꞌ/*010ꞌ -)90 0ꞌ 3ꞌ
1)ꞌ).ꞌ7C-9,-ꞌC+0ꞌ>+.*ꞌ 3ꞌ -*
0**.ꞌ 3ꞌ +89.ꞌ +,,).9 <ꞌ ꞌ -*ꞌ3;*0-D ꞌ+;68> ;66A
Eꞌ .6.*,;+)*.ꞌ ꞌ ꞌ 6 -*ꞌ ꞌ 3ꞌ 6 ;9FE:G6
.ꞌ C9 -ꞌ (C*)ꞌ Hꞌ+,,).9 <ꞌ ꞌ -*ꞌ ꞌ
(9)9ꞌ 3ꞌ- ;9 *00ꞌ?@ꞌ- 6)*01))*, 9 ꞌ 993F3292ꞌ
3) >ꞌ -*ꞌ.*+.D
'ꞌ @ꞌ C- >ꞌ ,H C*ꞌ -+8*ꞌ)*,*98*.ꞌ @89I J D89,)!
<)+,*ꞌ+ .ꞌA+(0;*0-9('23)ꞌ ꞌ ?*.9* ,*ꞌ /2ꞌ (ꞌ JA>K
ꞌ -*ꞌ3+9 -ꞌ +> <ꞌ +;;ꞌ + 9 0ꞌ 63)ꞌ
-90ꞌ +> *D
(E 37 ' ((' E> ' #1'+@@@2@'J JF' 1'(@' 'F' $),'@@(' '@@@(((' > F E ' 7'
(@' ' 3++' ' 'E >EJ' 2@'EF'@((' EJ'@<'EE'@@((' HE>H ' -;)('J >8 J' I'((' H>'
$/0*'<((' HE' 851'+(' J '@(((' EE'EJ' E (7 '((' G ' ;'<(((' J'(@)/'(((' ' $/0*'
\' H' 32'(<'H' ' (7'(((' ' %$/0*'(<'E'J' E$/0*'F' A ' ' '
$/2'*'((' G>E ' 8+1' 5'EH' JE' (((' ?' <' > E' <' J >JE' @(((' JJ>$(:' @<(((' 1(' E /,'
@(((' H .0'(' I>EJ'):'<' ' ' (*' -28)'@<(((' J, >J ' @@(<' E 'EF'):'(@' H
')+'(' ' E#)+'('E ')<'@(@' ' *' @((' J' @<' ' ' $/0*'(' ' ' @<' /%
E' /, '((' ' 32'(' ' .0'(22' E>I' ' (7'(' ' E' ' 8+1'(' E' @<' /%
(@' E' 32'((' G I ' 5' 5/' ' '' /?' ' '@<' G' I' @<(' E ' 8+1'<('
F' E' /, 'U' H%= '):'<' I' C' (((EI 'J ' @(' E J' @<' I > J ') *' @[*' G' #1'
@@(('EF' '@<2('E' @@((' F' 3++' @@<(((' I' 3,;'@<(' ?2-;)' @@(<' H ?V' 8+1'(@'
?' @@((' E ' @@<(' FA G' ' 3 (' H' 8+1@<' H' .0'(' E' ' #)+'((' I

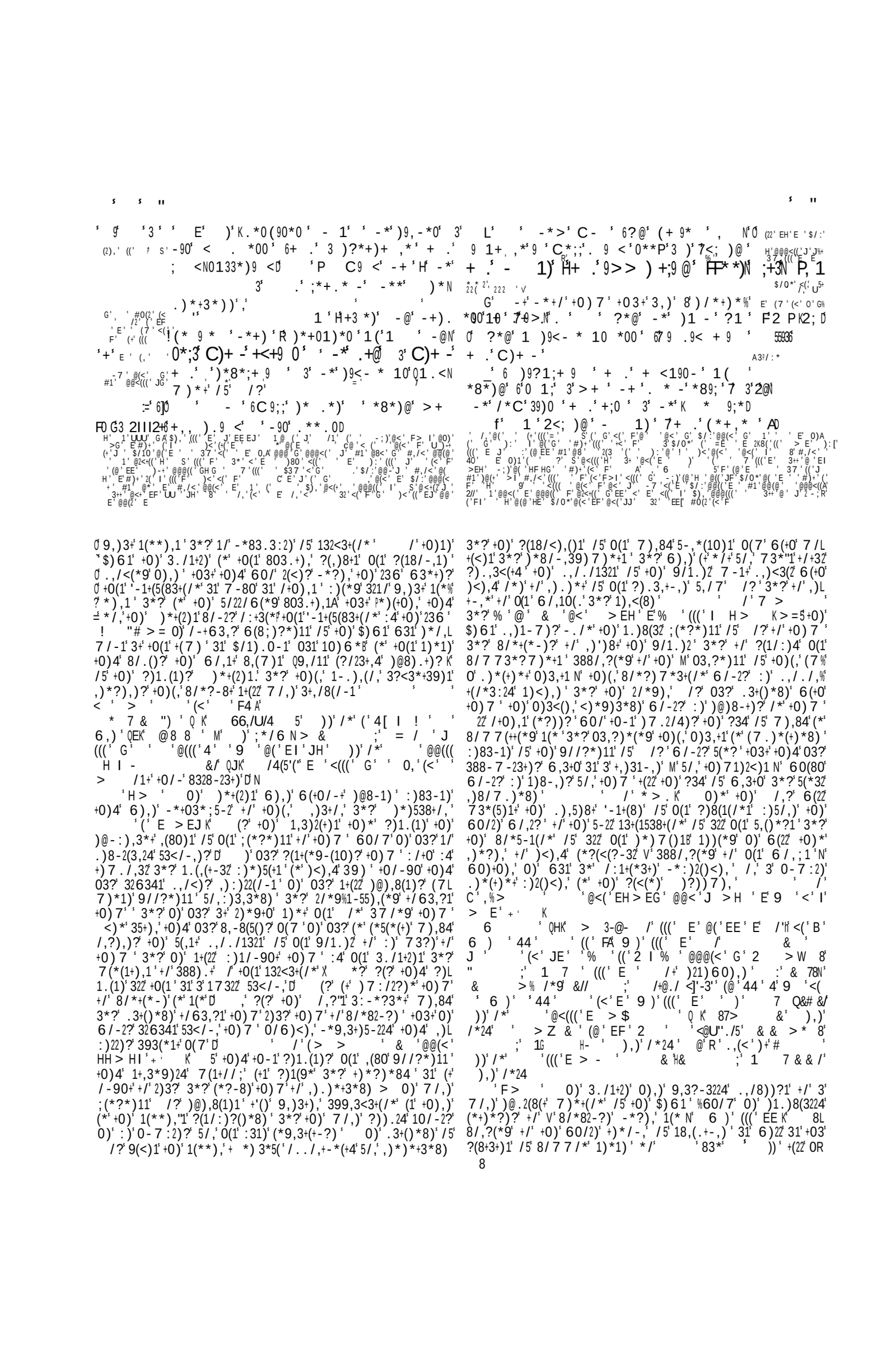
/*ꞌ+0)ꞌ6(+*)11)1ꞌ/5ꞌ0(1ꞌ,)1-,,)8+(/*ꞌ3*?ꞌ322ꞌ+0)ꞌ1+-.)*?/-1ꞌ
)55)8+1ꞌ 60(80ꞌ5/22/6)?ꞌ:/+0ꞌ(*ꞌ ,)1.)8+ꞌ /5ꞌ+0)7ꞌ3*?ꞌ /5ꞌ
+0/1)ꞌ/*ꞌ60/7ꞌ+0)4ꞌ23(?ꞌ+0)(,ꞌ03*?ꞌ6),)ꞌ3ꞌ?(<(*)ꞌ3++)1+3L
+(/*ꞌ+/ꞌ+0)(,ꞌ+)1+(7/*4$ 3*?ꞌ+0-1ꞌ$)1-1ꞌ60/ꞌ631ꞌ8,-8(5()?ꞌ
5/,ꞌ355(,7(*9ꞌ+03+ꞌ0)ꞌ631ꞌM ꞌ+0)ꞌ /*ꞌ /5ꞌ /?N ꞌ631ꞌ ?)%
M ꞌ?3,)?N ꞌ/,ꞌ0ꞌ?)+),7(*)?ꞌ+/ꞌ:)ꞌ+0)ꞌ /*ꞌ /5ꞌ /?ꞌ6(+0ꞌ./6),ꞌ
0ꞌ:4ꞌ 0(1ꞌ,)1-,,)8+(/* N ꞌ 388/,?(*9ꞌ+/ꞌ +0)ꞌ ?)7/*1+,3+(/*ꞌ
/5ꞌ+03+ꞌ)<)*+ꞌ 3,(1(*9ꞌ5,/7ꞌ+0)ꞌ ?(<),1ꞌ./6),1ꞌ1(9*1ꞌ3*?ꞌ
7(,382)1ꞌ60(80ꞌ+0)ꞌ .(,(+ꞌ/5ꞌ /?ꞌ)*3:2)?ꞌ+0)ꞌ3./1+2)1ꞌ3*?ꞌ
.,(7(+(<)ꞌ 0,(1+(3*1ꞌ+/ꞌ.),5/,7ꞌ ꞌ /ꞌ ꞌ7 > ꞌ
$ "ꞌ((ꞌ > H ꞌ ꞌH K ꞌ +ꞌ 734ꞌ 321/ꞌ :)ꞌ /:1),<)?ꞌ+03+ꞌ+0)ꞌ
/24ꞌ .(,(+ꞌ03?ꞌ5/,)+/2?ꞌ:4ꞌ+0)ꞌ ./.0)+1ꞌ+03+ꞌ+0)ꞌ)1L
1(30ꞌ6/-2?ꞌ:)ꞌ +0)ꞌ /*ꞌ /5ꞌ /?ꞌ31ꞌ6)22ꞌ31ꞌ+0)ꞌ /*ꞌ /5ꞌ
3<(?ꞌ3*?ꞌ321/ꞌ+03+ꞌ0)ꞌ6/-2?ꞌ:)ꞌ.-+ꞌ+/ꞌ?)3+0ꞌ3*?ꞌ,(1)ꞌ
393(*ꞌ 3*?ꞌ)*+),ꞌ (*+/ꞌ 0(1ꞌ92/,4ꞌ 0)*ꞌ+0),)5/,)ꞌ+0)ꞌ
/,?ꞌ$)1-1ꞌ03<(*9ꞌ:))*ꞌ.-+ꞌ+/ꞌ?)3+0ꞌ31ꞌ3ꞌ?)8)(<),ꞌ3*?ꞌ
:231.0)7),ꞌ3,/1)ꞌ5,/7ꞌ+0)ꞌ?)3?ꞌM ꞌ318)*?)?ꞌ /*ꞌ 0(90 ꞌ
M ꞌ3*?ꞌ93<)ꞌ9(5+1ꞌ+/ꞌ7)*ꞌ N ꞌ)1.)8(3224ꞌ:4ꞌ./-,(*9ꞌ/-+ꞌ+0)ꞌ
/24ꞌ .(,(+ꞌ/*ꞌ0(1ꞌ3./1+2)1ꞌ3*?ꞌ?(18(.2)1ꞌ388/,?(*9ꞌ+/ꞌ+2()ꞌ
.,)?(8+(/*1ꞌ/5ꞌ0/24ꞌ7)*ꞌ5,/7ꞌ+0)ꞌ :)9(**(*9ꞌ M ꞌ60/ꞌ1.3;)ꞌ
M ꞌ31ꞌ+0)4ꞌ6),)ꞌ 7/<)?ꞌ:4ꞌ+0)ꞌ /24ꞌ 0/1+ꞌ N ꞌ0)ꞌ(*ꞌ :/+0ꞌ
,)1.)8+1ꞌ631ꞌ M ꞌ?)823,)?ꞌ+/ꞌ:)ꞌ+0)ꞌ /*ꞌ /5ꞌ /?ꞌ6(+0ꞌ./6),ꞌ
M ꞌ:4ꞌ0(1ꞌ,)1-,,)8+(/*ꞌ5,/7ꞌ+0)ꞌ?)3?ꞌ388/,?(*9ꞌ+/ꞌ+0)ꞌ .(,(+ꞌ
M ꞌ/5ꞌ0/2(*)11 N ꞌ 1 ꞌ((ꞌEE>J ꞌ ꞌ(<ꞌ8> J K
9)) ꞌ+/ꞌ:)ꞌ ꞌ) ꞌ ꞌ ꞌ3(,/%/ /*ꞌ ꞌF%<(((ꞌEG ꞌ
))ꞌ/*ꞌ ꞌ@@ꞌ >2 :;ꞌ 1/8 & .ꞌ6)ꞌ(ꞌ
))ꞌ/*ꞌ ꞌ@@<ꞌJE ꞌ @ꞌ3ꞌ.,(<ꞌ)+ꞌ/.(5/(ꞌH>$ ꞌ ꞌ <
ꞌ / ꞌ QEK *./11*'443 3 /ꞌ),)ꞌ /*24ꞌ @ꞌ -- ꞌ)+ꞌ
,3441 /]@3(ꞌ ꞌ(C-/?ꞌ)@ꞌ)6'ꞌ)+ꞌ ## => ꞌ &
> $) ꞌ QHK M ꞌ)+),7(*)? N ꞌ ?@ 38 -9.ꞌ &
@@((ꞌ EE ꞌ))ꞌ /*ꞌ 1 ꞌ ((ꞌ EJ > @/ꞌ) ;ꞌ :1# 3
E ꞌ :,ꞌ<((ꞌ ꞌ ꞌ- ꞌ (((ꞌ J ꞌ /+ꞌ)21)60),)ꞌ ꞌ > %
@8<((ꞌ E 8@2<ꞌ ꞌ 2 ꞌ :34(/'ꞌ &
ꞌ > F% ,/7ꞌ+0(1ꞌ92/,(/-1ꞌ 3<(/-,ꞌ #3-2ꞌ ?)823,)?ꞌ
+03+ꞌ0)ꞌ03?ꞌ,)8)(<)?ꞌ 7),84ꞌ3*?ꞌ9,38)ꞌ 31ꞌ6)22ꞌ31ꞌ3*ꞌ3.L
./(*+7)*+ꞌ+/ꞌ+0)ꞌ3./1+/2(832ꞌ/55(8)ꞌ+03+ꞌ2()ꞌ7(90+ꞌ:)ꞌ)7L
.2/4)?ꞌ31ꞌ0(1ꞌ7(*(1+),ꞌ(*ꞌ :,P79(*9ꞌ1(**),1ꞌ/5ꞌ322ꞌ*3+(/*1ꞌ+/ꞌ
M ꞌ+0)ꞌ/:)?()*8)ꞌ /5ꞌ53(+0 N ꞌ:4ꞌ388).+(*9ꞌ/5ꞌ+0)ꞌ)?))7),"1ꞌ
7),84ꞌ3*?ꞌ:)8/7(*9ꞌ+0)ꞌ 6(22(*9ꞌ3*?ꞌ?)</+)?ꞌ1-:')8+1ꞌ/5ꞌ
0(1ꞌ;(*9?/7ꞌ5/,ꞌ+0)ꞌ0/*/-,ꞌ/5ꞌ0(1ꞌ*37)ꞌ(*ꞌ+0),ꞌ132<3+(/*
ꞌH

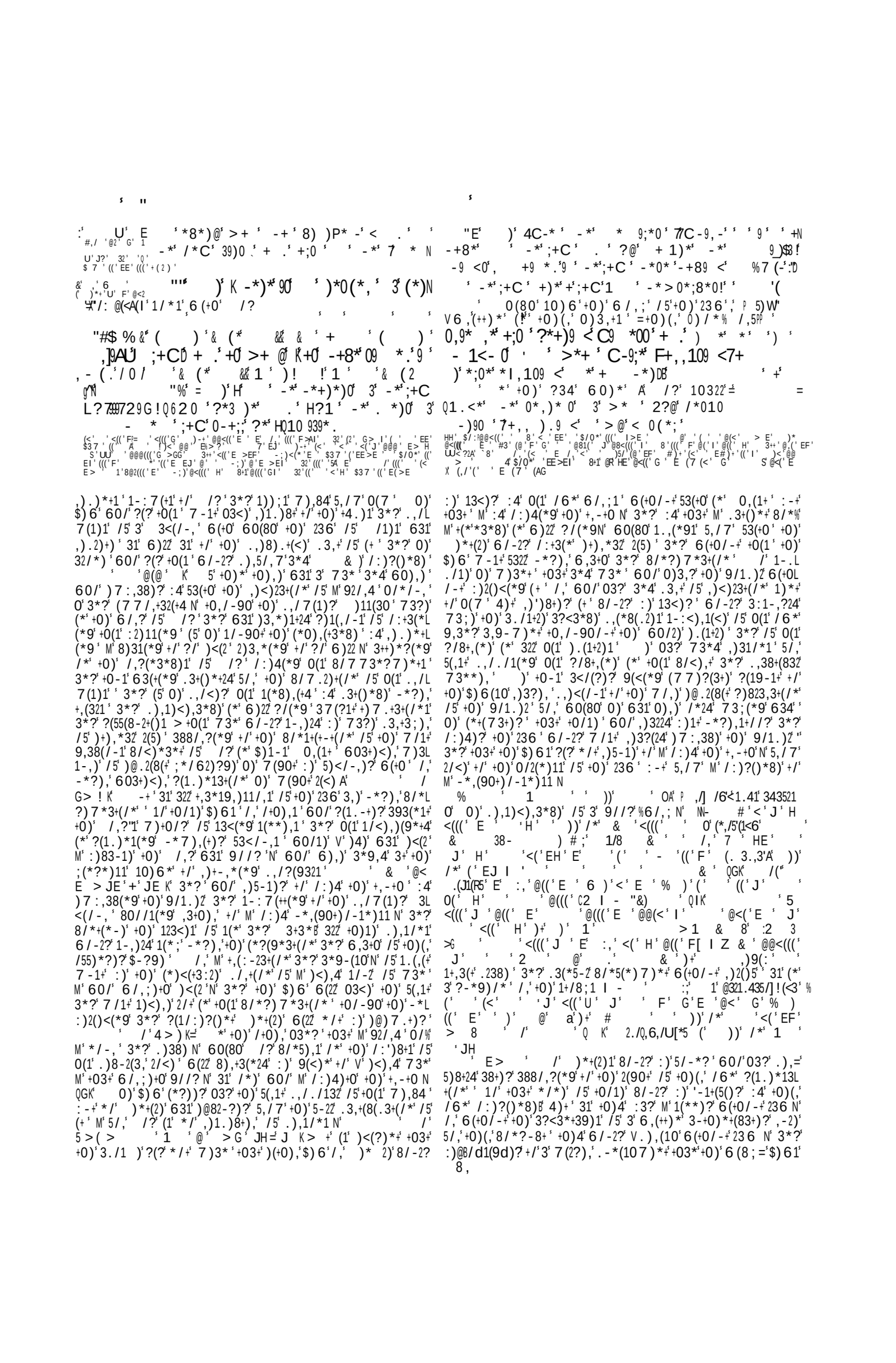
ꞌ ꞌ ꞌ ꞌ 88/,?(*9ꞌ+/ꞌ+0)ꞌ8-1+/7ꞌ/5ꞌ+0/1)ꞌ
+(7)1ꞌ+0)ꞌ3./1+2)ꞌ:)93*ꞌ+0(1ꞌ).(1+2)ꞌ:4ꞌ.,)5(@(*9ꞌ0(1ꞌ*37)ꞌ
3*?ꞌ?(1+(*9-(10(*9ꞌ+(+2)ꞌ ꞌ 1 ꞌ@<ꞌ44>EIꞌ ꞌ45ꞌ
@@(((ꞌE >J ꞌ E K 0)ꞌ 2(,(1+(3*1ꞌ3+ꞌ /7)ꞌ6/-2?ꞌ,)L
8)(<)ꞌ+0(1ꞌ2)++),ꞌ5,/7ꞌ#3-2ꞌ62(/ꞌ631ꞌ321/ꞌ8322)?ꞌ 3-2ꞌ3*?ꞌ
03?ꞌ:))*ꞌ3ꞌ.),1)8-+/,ꞌ/5ꞌ+0)ꞌ80-,80ꞌ:-+ꞌ60/ꞌ*/6ꞌ,)93,?)?ꞌ
(+ꞌ 31ꞌ 0(1ꞌ0/*/-,ꞌ3*?ꞌ03..(*)11ꞌ+/ꞌ:)ꞌ M ꞌ+0)ꞌ1),<3*+ꞌ /5ꞌ
M ꞌ$)1-1ꞌ 0,(1+ꞌ3*?ꞌ0(1ꞌ8322)?ꞌ3./1+2)ꞌN ꞌ03<(*9ꞌ:))*ꞌ
O ꞌ1).3,3+)?N ꞌ3*?ꞌ3../(*+)?ꞌ:4ꞌ+0)ꞌ80/(8)ꞌ3*?ꞌ)55)8+-32ꞌ
8322(*9ꞌ/5ꞌ /?ꞌ+/ꞌ .,)380ꞌ0(1ꞌ9/1.)2ꞌ+/ꞌ+2()ꞌ6/,2?ꞌ3*?ꞌ+/ꞌ
1.)*?ꞌ0(1ꞌ1-:1)C-)*+ꞌ2(5)ꞌ(*ꞌ ,/7/+(*9ꞌ(+ꞌ ꞌ /ꞌ3>ꞌ
) > ꞌ6)ꞌ(ꞌ > =EHK 0(1ꞌ?/8+,(*)ꞌ633*/*)6ꞌ?(1L
8/<),4ꞌ /,ꞌ(*<)*+(/*ꞌ:-+ꞌ+0)ꞌ 5-25(27)*+ꞌ /5ꞌ +0)ꞌ .,/7(1)1ꞌ
73?)ꞌ(*ꞌ+0)ꞌ138,)?ꞌ18,(.+-,)1ꞌ:4ꞌ+0)ꞌ .,/.0)+1ꞌ3*?ꞌ(+ꞌ,)L
1.)8+)?ꞌ+0)ꞌ /*ꞌ /5ꞌ /?ꞌ)<)*ꞌ$)1-1ꞌ+2()ꞌ 3<(/-,ꞌ+0)ꞌ.,/L
7(1)?ꞌ$)11(30ꞌ+0)ꞌ#,/.0)+ꞌ#,()1+ꞌ3*?ꞌ !(*9ꞌ/5ꞌ+0)ꞌ
80-,80ꞌ60/7ꞌ322ꞌ:)2()<),1ꞌ38;*/62)?9)?ꞌ3*?ꞌ/:)4)?ꞌ31ꞌ
+0)(,ꞌ /,?ꞌ)ꞌ631ꞌ?)18)*?)?ꞌ5,/7ꞌ 3<(?ꞌ388/,?(*9ꞌ+/ꞌ
Y+0)ꞌ52)10ꞌ /,ꞌ (*ꞌ 0(1ꞌ0-73*ꞌ*3+-,)ꞌ:-+ꞌ0)ꞌ03?ꞌ321/ꞌ:))*ꞌ
?)823,)?ꞌ/,ꞌ ꞌ +/ꞌ:)ꞌ+0)ꞌ /*ꞌ /5ꞌ /?ꞌ:4ꞌ+03+ꞌ
?(<(*)ꞌ./6),ꞌ60(80ꞌ,3(1)?ꞌ0(7ꞌ5,/7ꞌ+0)ꞌ?)3?ꞌ ꞌ /ꞌ
?>;K?> 0)ꞌ)@.,)11(/*ꞌM ꞌ388/,?(*9ꞌ+/ꞌ+0)ꞌ .(,(+ꞌ/5ꞌ0/((%
M ꞌ*)11 N ꞌ031ꞌ:))*ꞌ 9)*),3224ꞌ(*+),.,)+)?ꞌ+/ꞌ 1(9*(54ꞌM ꞌ38%
V ꞌ8/,?(*9ꞌ+/ꞌ:(1ꞌ?(<(*)ꞌ*3+-,)ꞌN ꞌ:-+ꞌ(+ꞌ1ꞌ*/+ꞌ-1)?ꞌ(*ꞌ+03+ꞌ
1)*1)ꞌ(*ꞌ3*4ꞌ/+0),ꞌ.238)ꞌ*/,ꞌ?/)1ꞌ(+ꞌ/:<(/-124ꞌ8/*<)4ꞌ+03+ꞌ
(?)3ꞌ +0),1ꞌ+0),)5/,)ꞌ)@.23(*ꞌ(+ꞌ/5ꞌ+0)ꞌ8/*8).+(/*ꞌ/5ꞌ$)1-1ꞌ
:4ꞌ+0)ꞌ /24ꞌ .(,(+ꞌ/*ꞌ60(80ꞌ388/-*+ꞌ0)ꞌ631ꞌ8322)?ꞌM ꞌ+0)ꞌ
M ꞌ /*ꞌ /5ꞌ /?ꞌN ꞌ:-+ꞌ+0(1ꞌ?/)1ꞌ*/+2((*9ꞌ7/,)ꞌ+03*ꞌ1+3+)ꞌ
603+ꞌ0)ꞌ631ꞌM ꞌ388/,?(*9ꞌ+/ꞌ+0)ꞌ52)10N ꞌ/,ꞌ(*ꞌ0(1ꞌ0-73*ꞌ
3+-,)ꞌ60),)31ꞌ+0)ꞌ3./1+2)ꞌ82)3,24ꞌ(+)*?)?ꞌ+/ꞌ10)6ꞌ0(1ꞌ
P ?(<(*)ꞌ*3+-,)ꞌ31ꞌ+0)ꞌM ꞌ/*24ꞌ:)9/++)*ꞌ /*ꞌ /5ꞌ+0)ꞌ 3+0),ꞌN
3*?ꞌ+0)ꞌ ꞌ31ꞌ6)22ꞌ31ꞌ+0)ꞌ 7ꞌ)<(?)*+24ꞌ,)C-(,)1ꞌ
+0(1ꞌ -,ꞌ /,?ꞌ(*?))?ꞌ6,/-90+ꞌ322ꞌ0(1ꞌ7(,382)1ꞌ:4ꞌ+0)ꞌ
.(,(+ꞌ/5ꞌ /?ꞌ60(80ꞌ631ꞌM ꞌ9(<)*ꞌ+/ꞌ0(7ꞌ6(+0/-+ꞌ7)31-,)ꞌN ꞌ
:-+ꞌ+0)ꞌ3./1+2)ꞌ.23(*24ꞌ=1.)3;1ꞌ/5ꞌM ꞌ+0)ꞌ .(,(+ꞌ/5ꞌ0/2(*)11 N ꞌ
(*ꞌ(7 7)?(3+)ꞌ8/**)@(/*ꞌ6(+0ꞌ+0)ꞌ?)7/*1+,3+(/*ꞌ+03+ꞌ$)1-1ꞌ
631ꞌ+0)ꞌ /*ꞌ /5ꞌ /?ꞌ60(80ꞌ3,/1)ꞌ5,/7ꞌ0(1ꞌ,)1-,,)8+(/*ꞌ
5,/7ꞌ+0)ꞌ?)3?ꞌ /6ꞌ+0)ꞌ./-,(*9ꞌ/-+ꞌ/5ꞌ+0)ꞌ /24ꞌ .(,(+

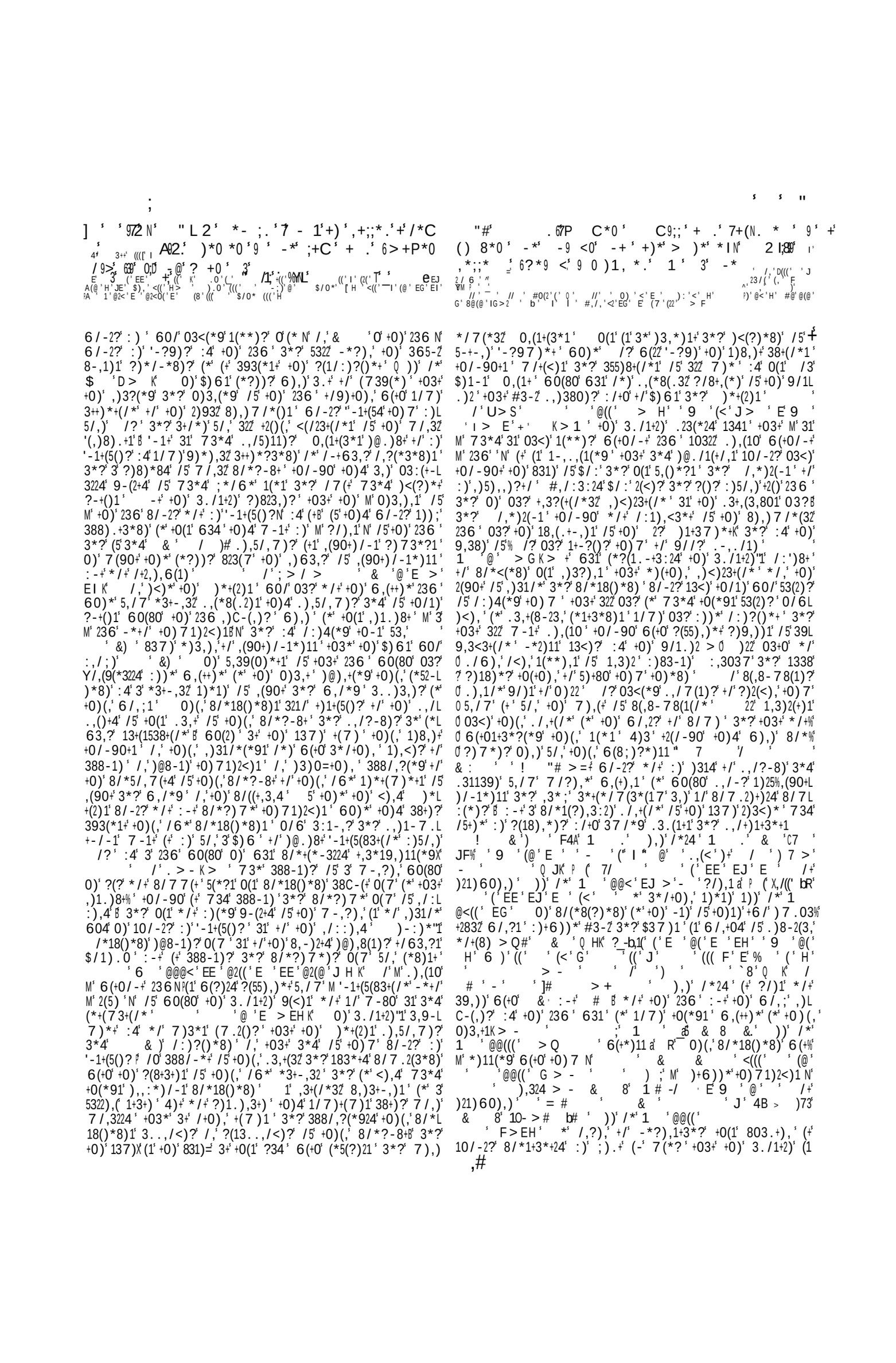


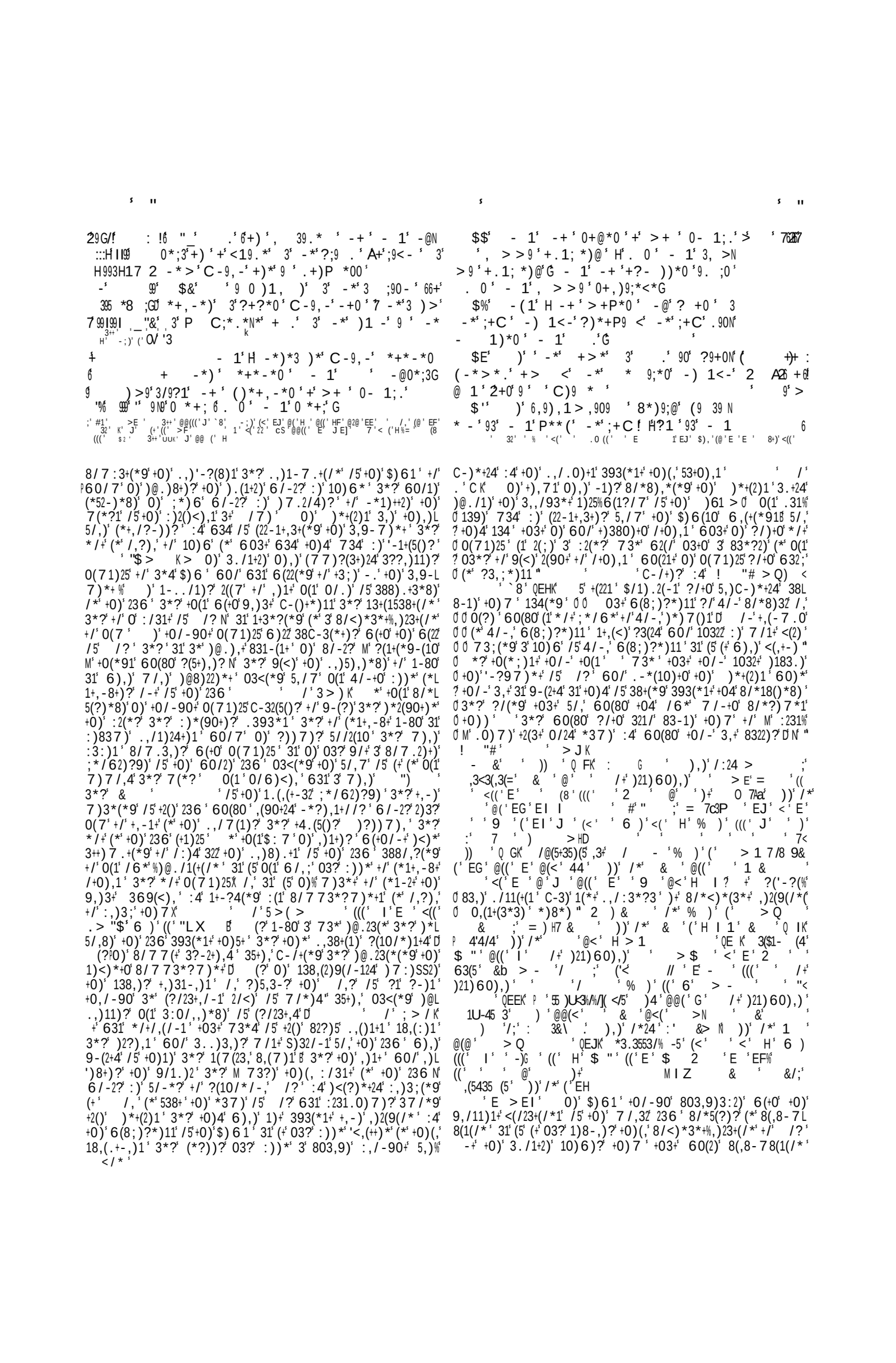


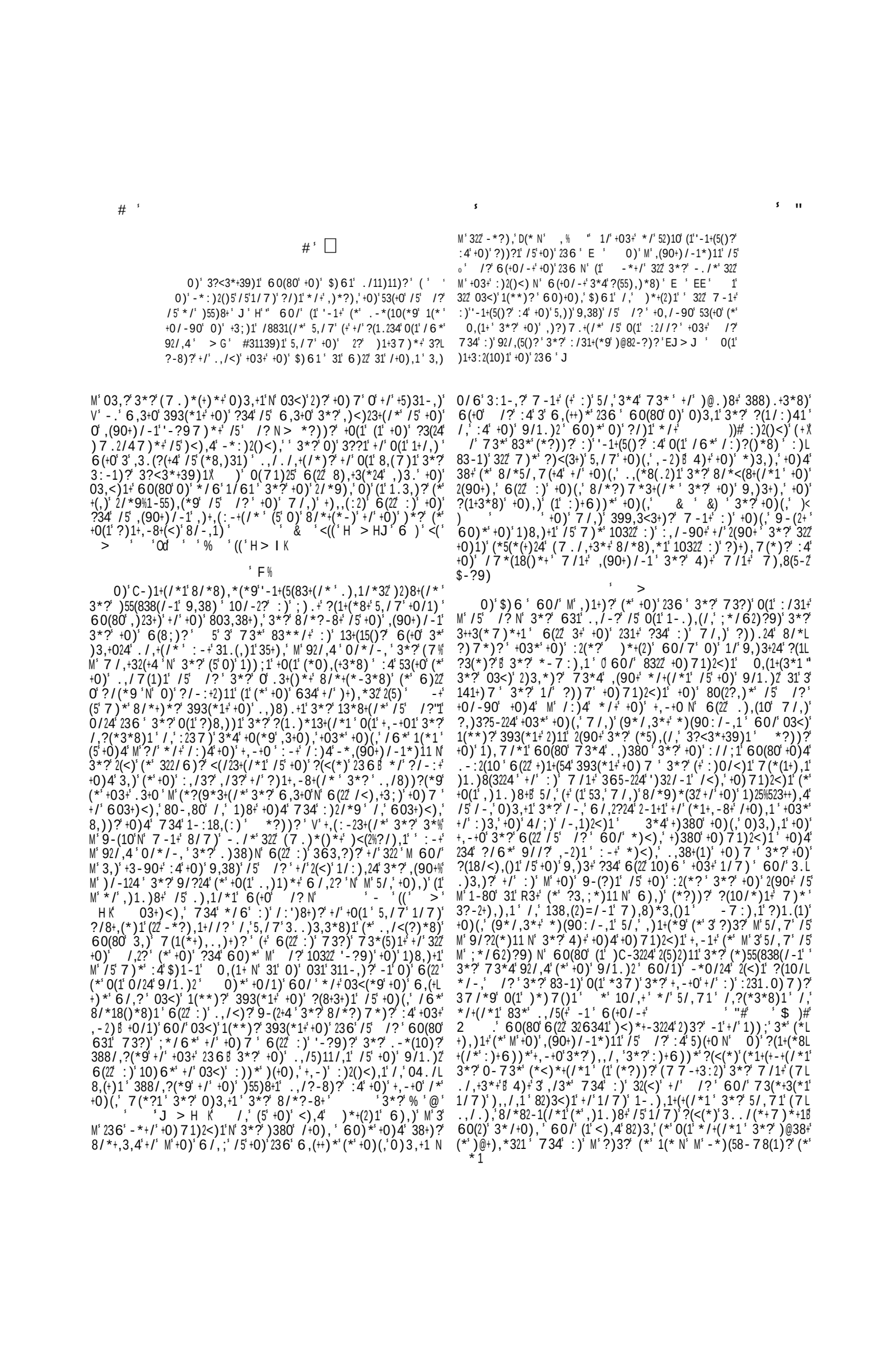


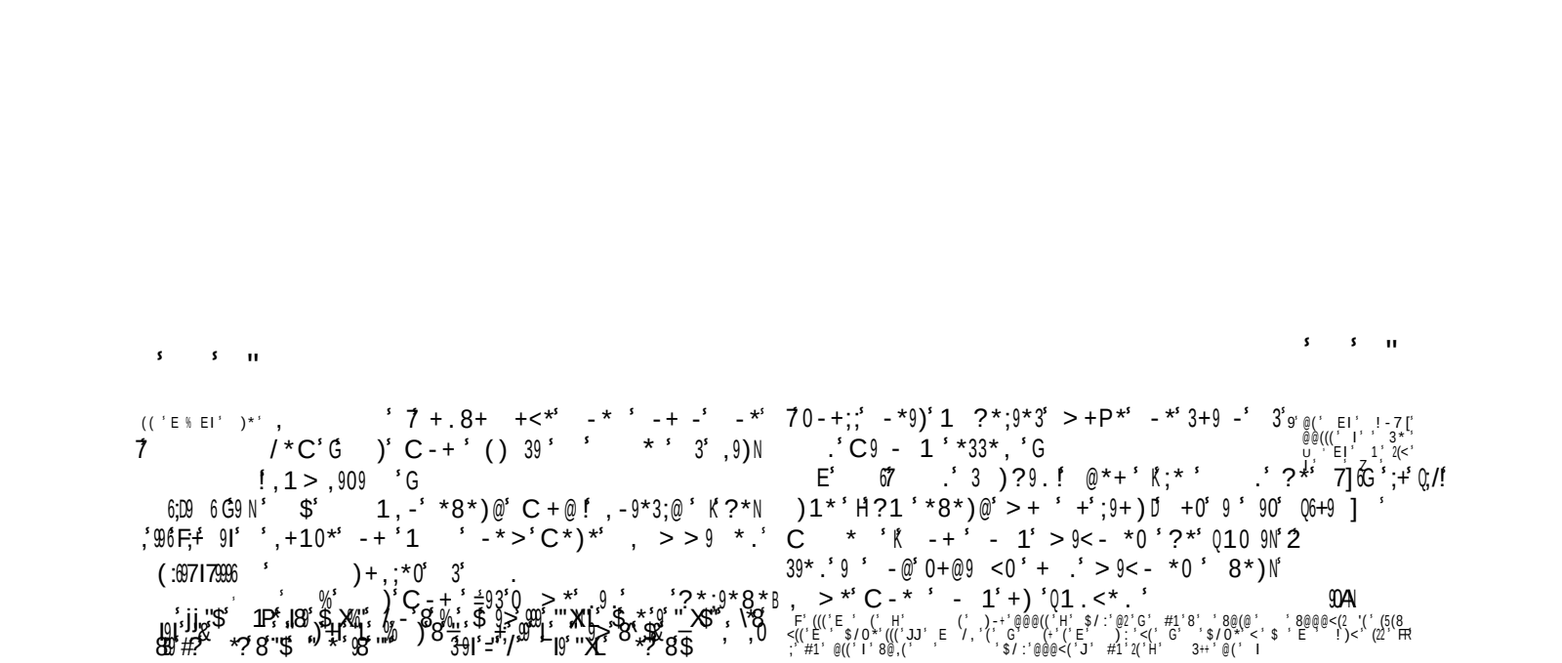


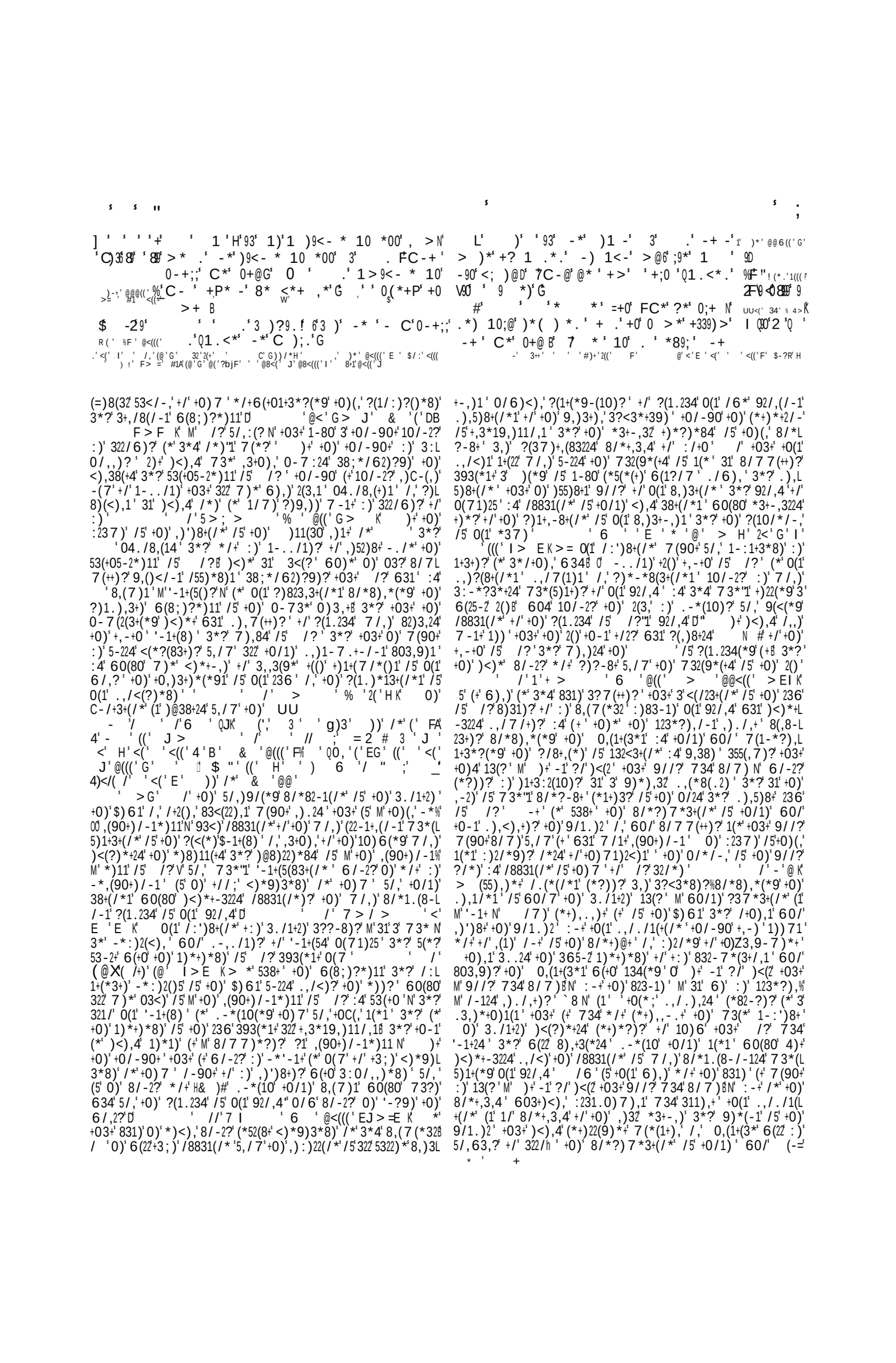


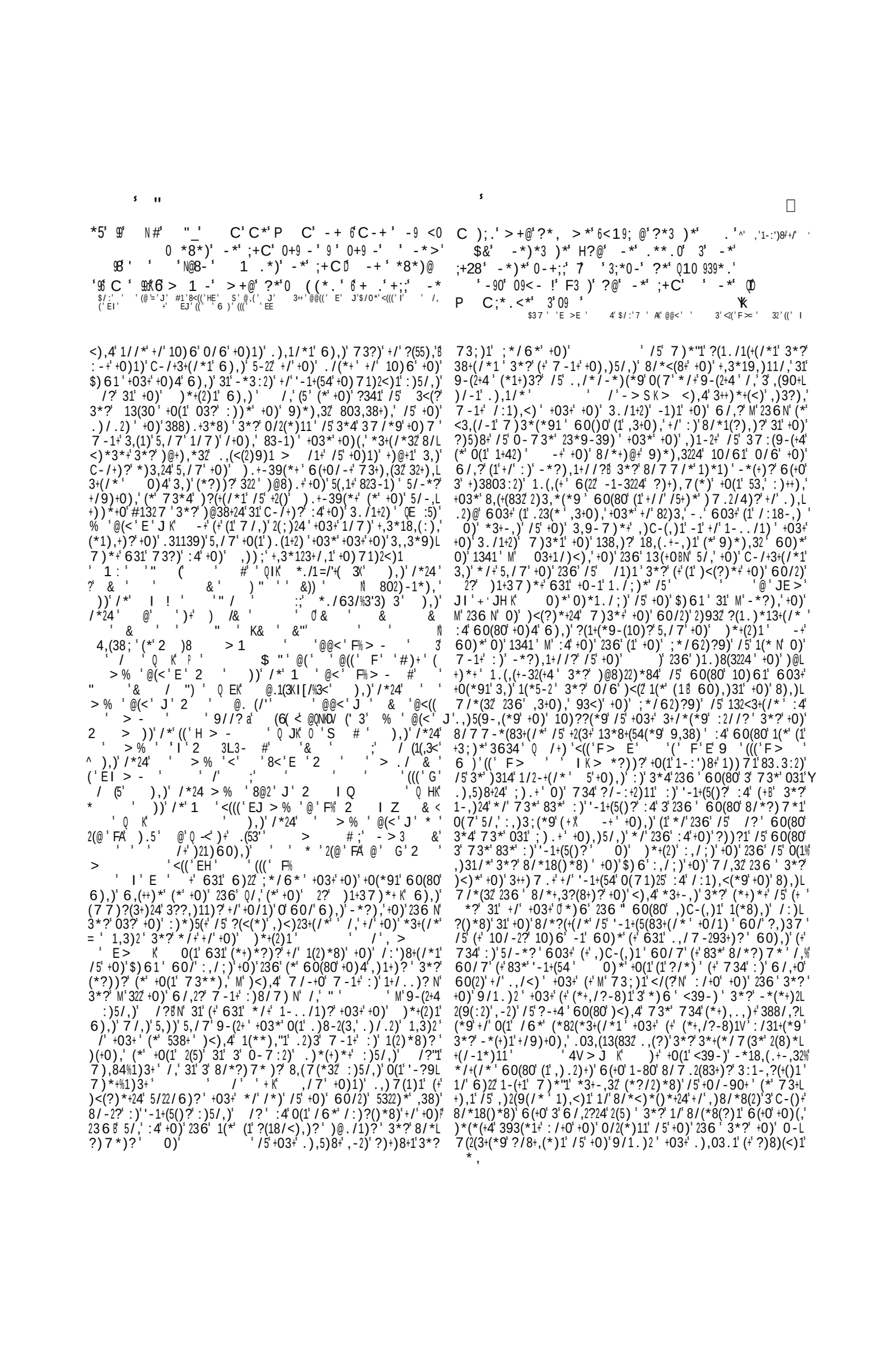


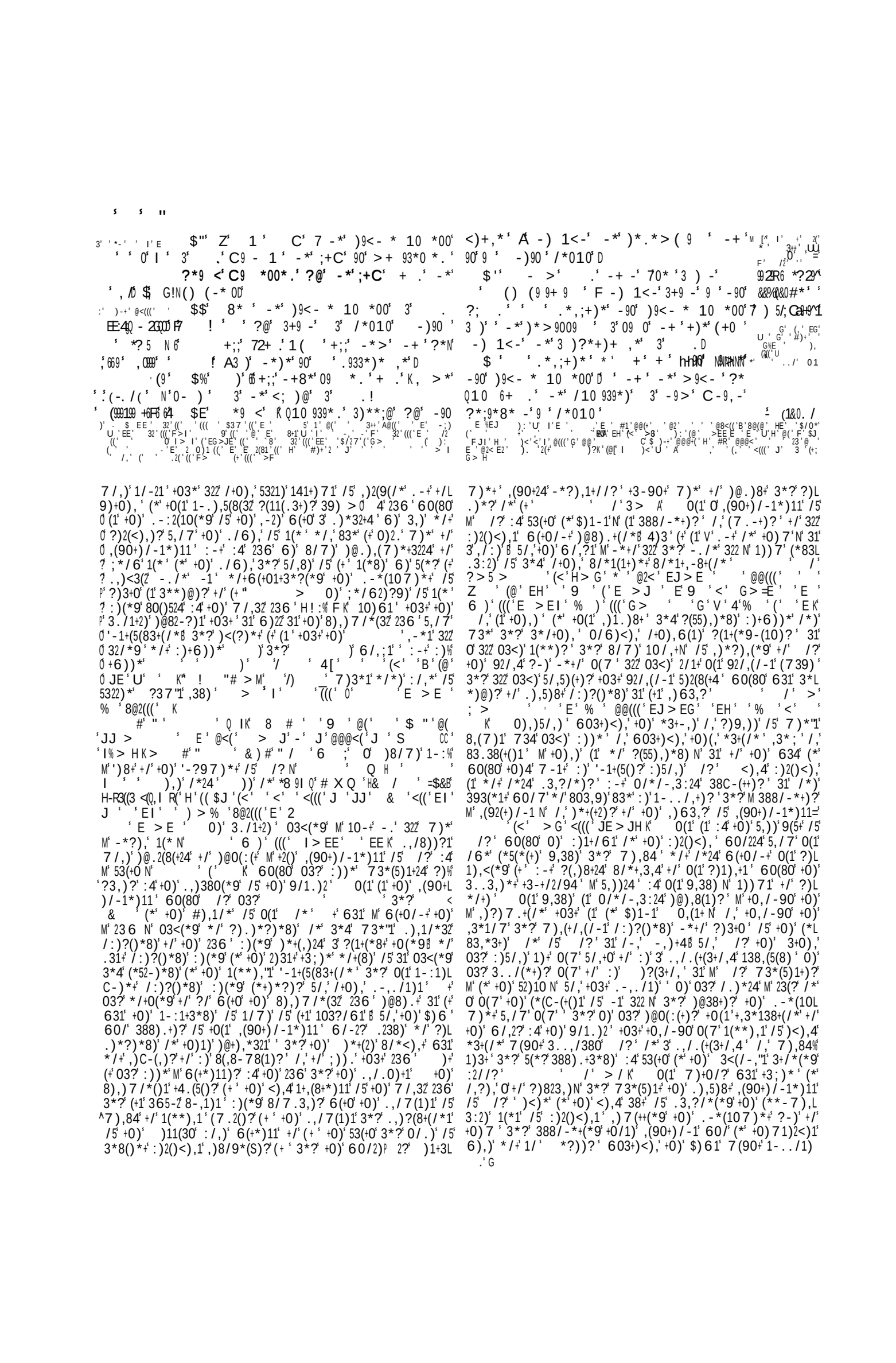


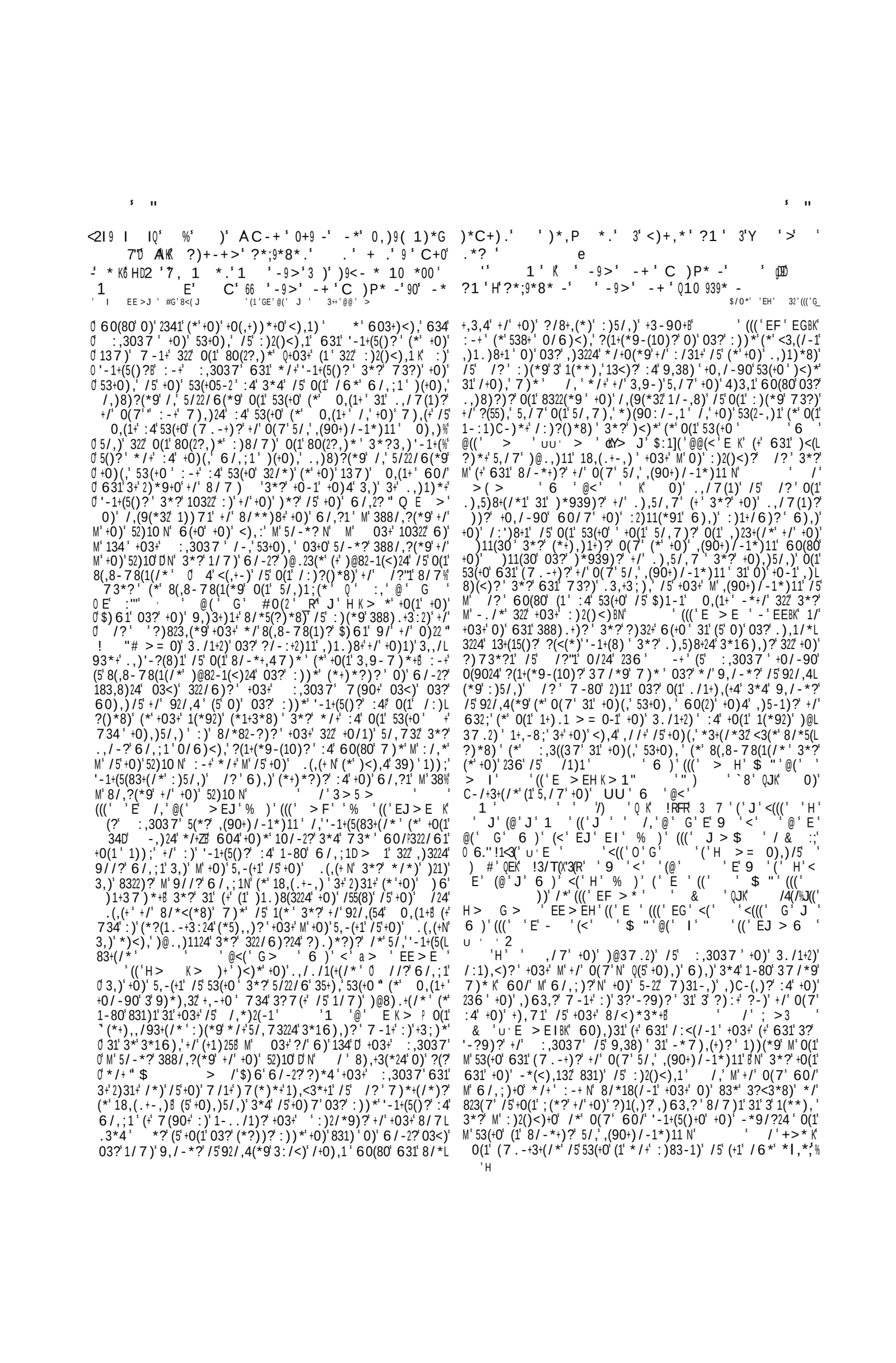


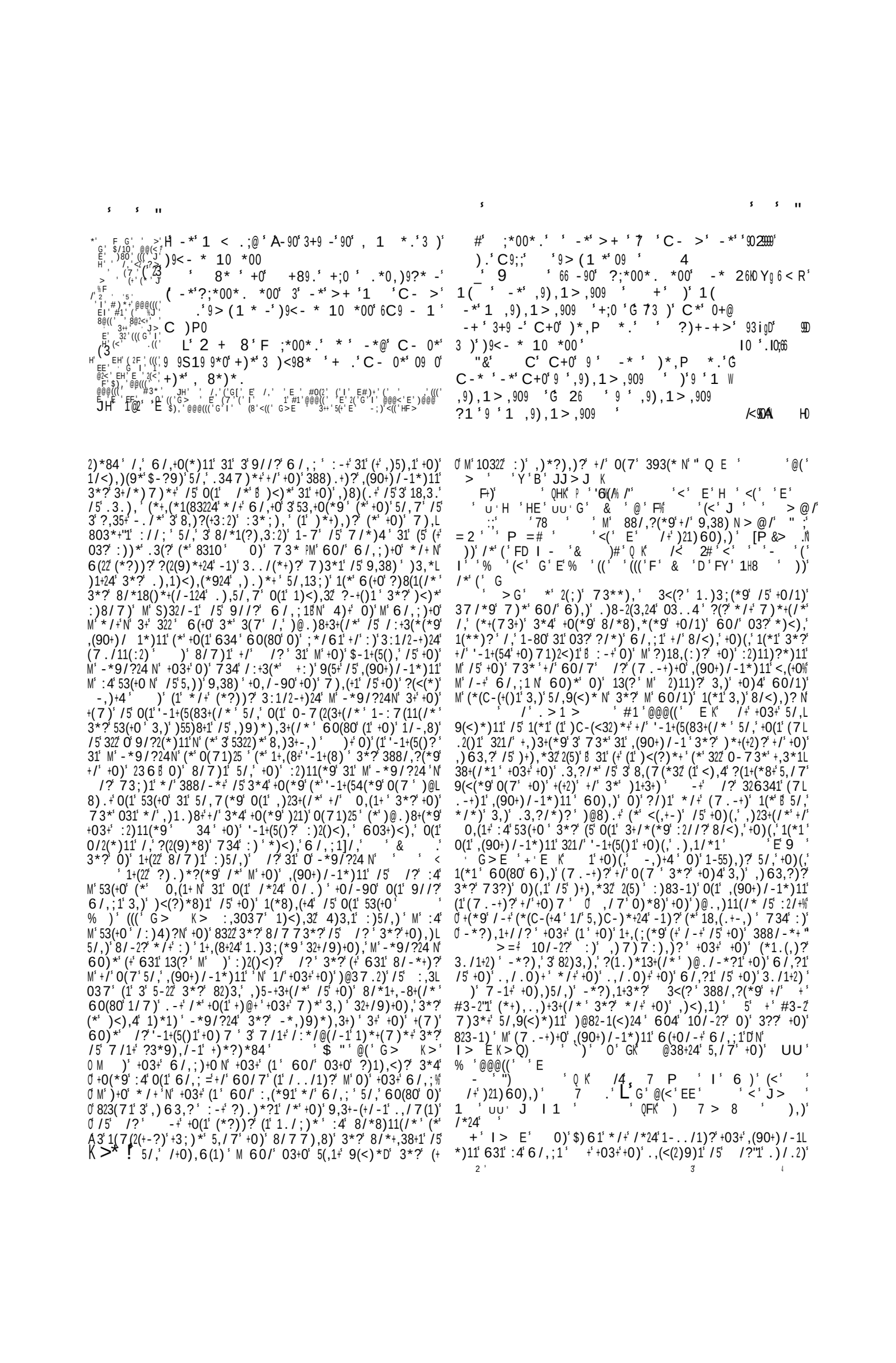


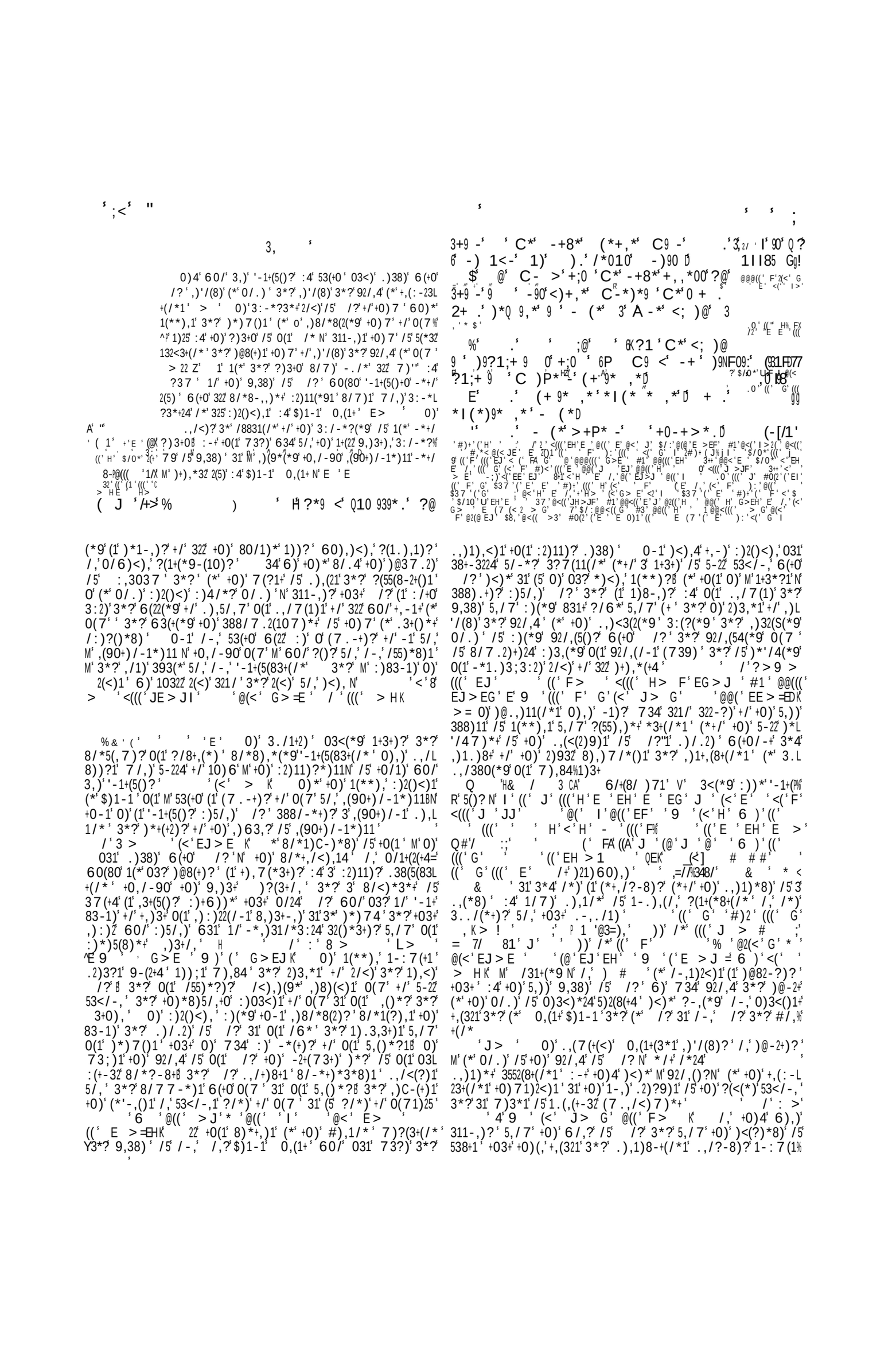


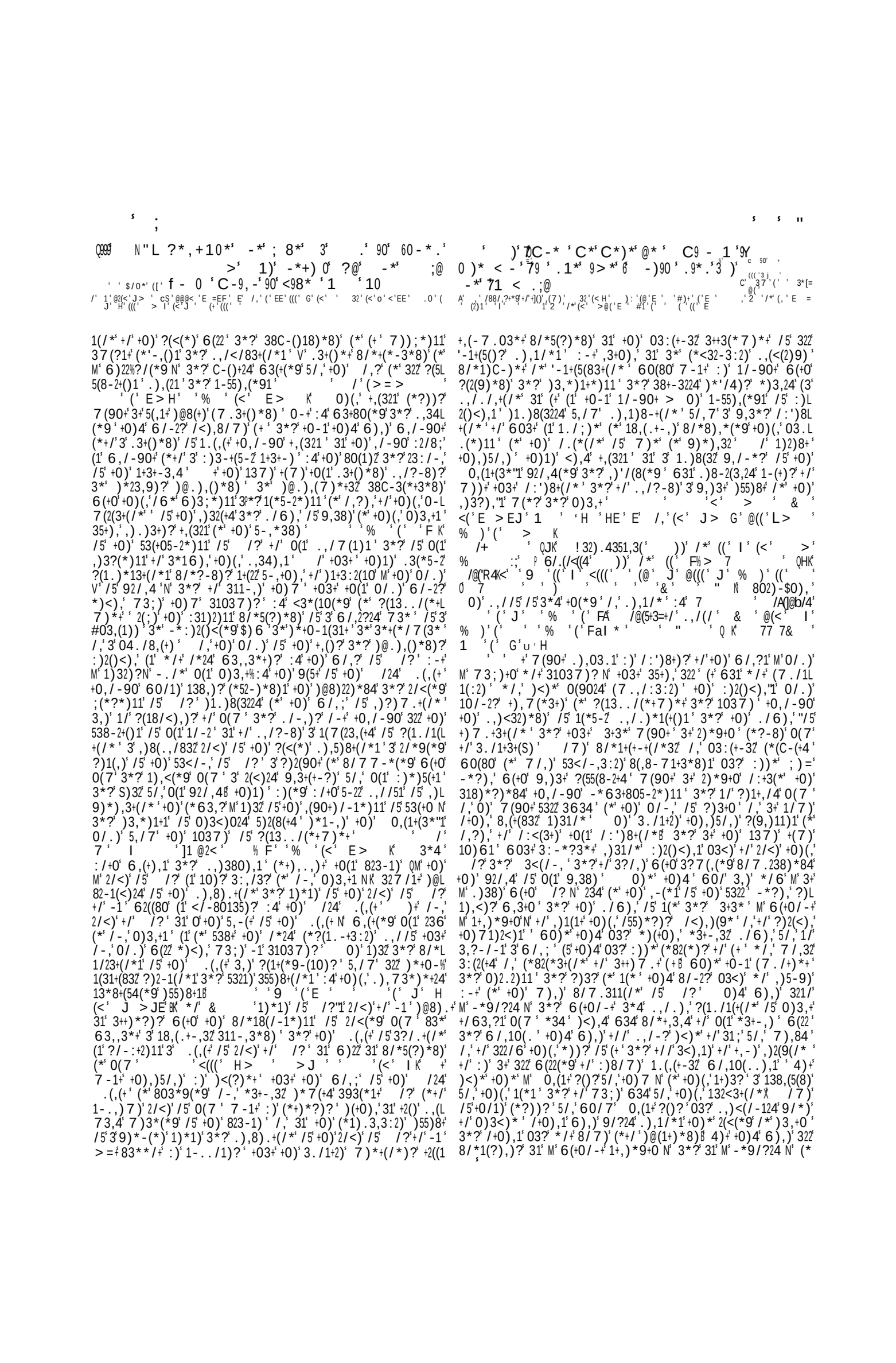


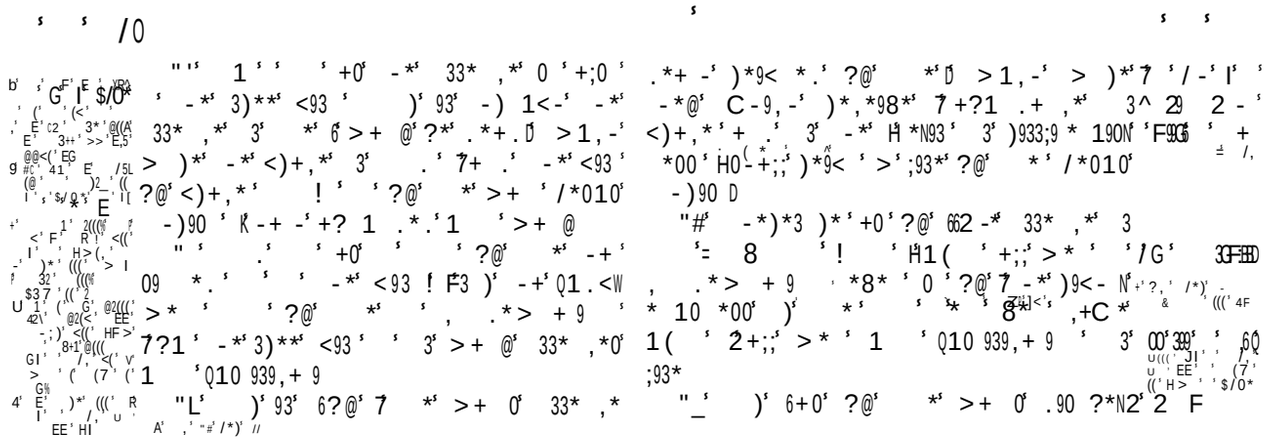


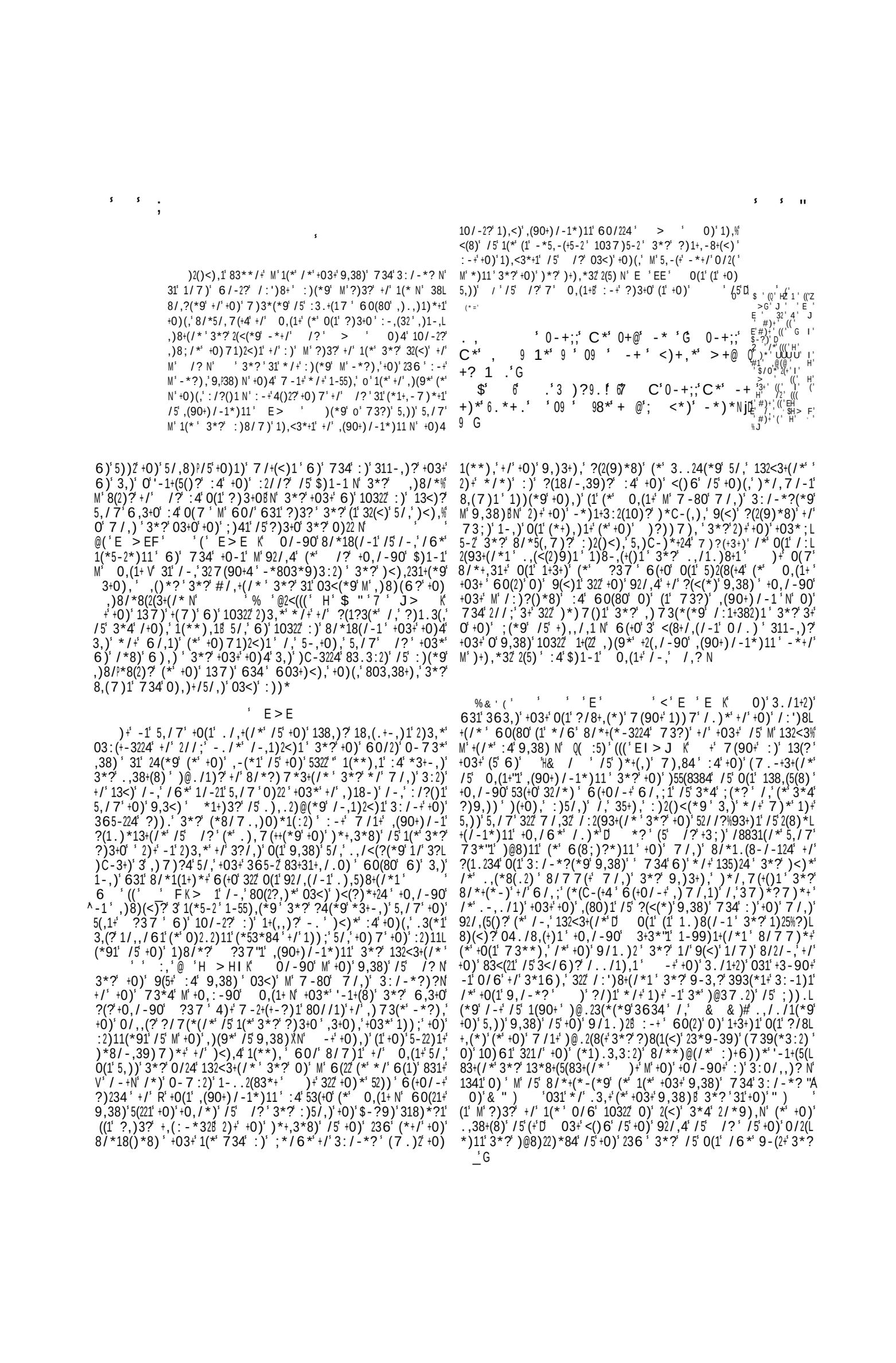


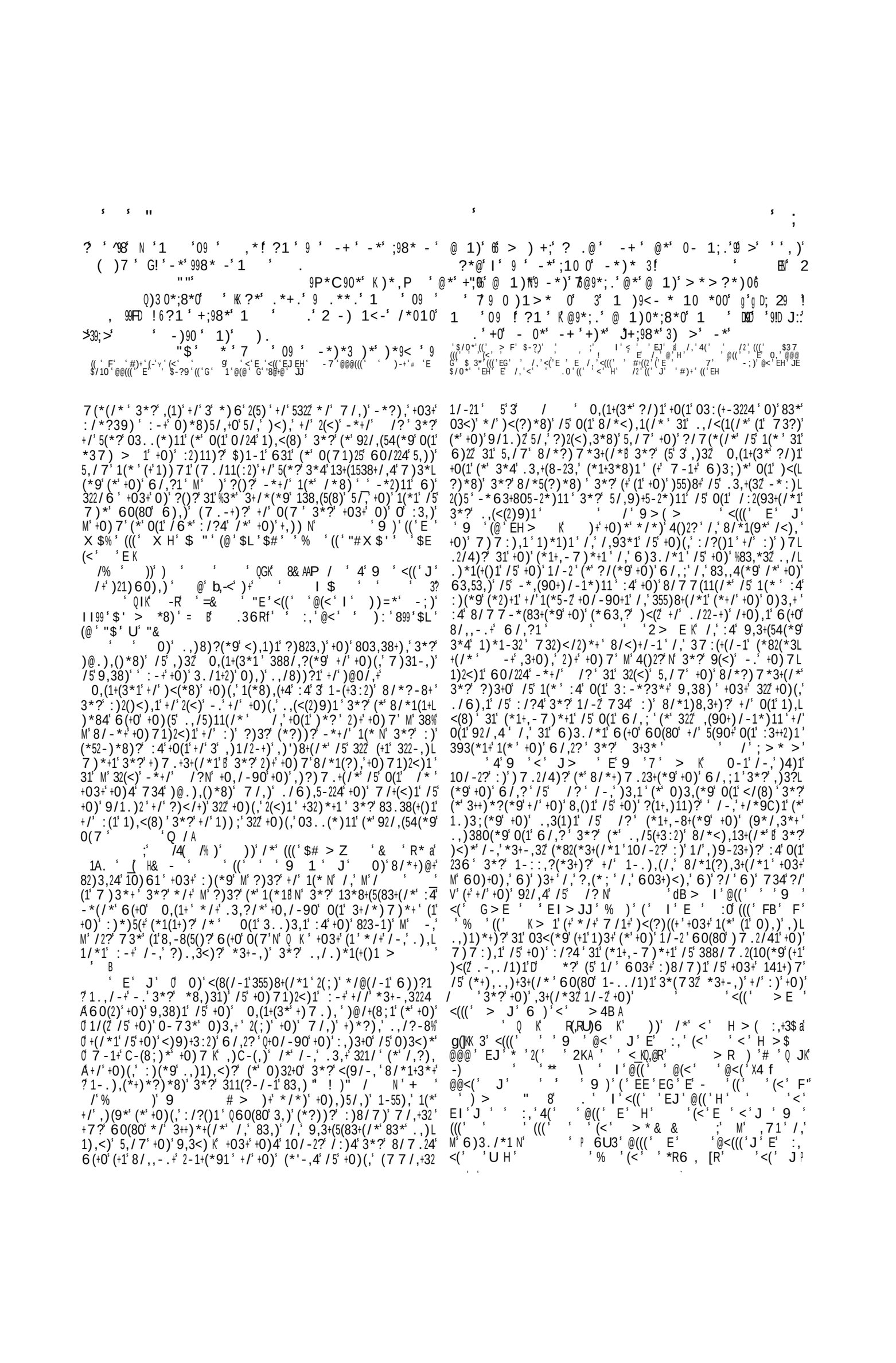


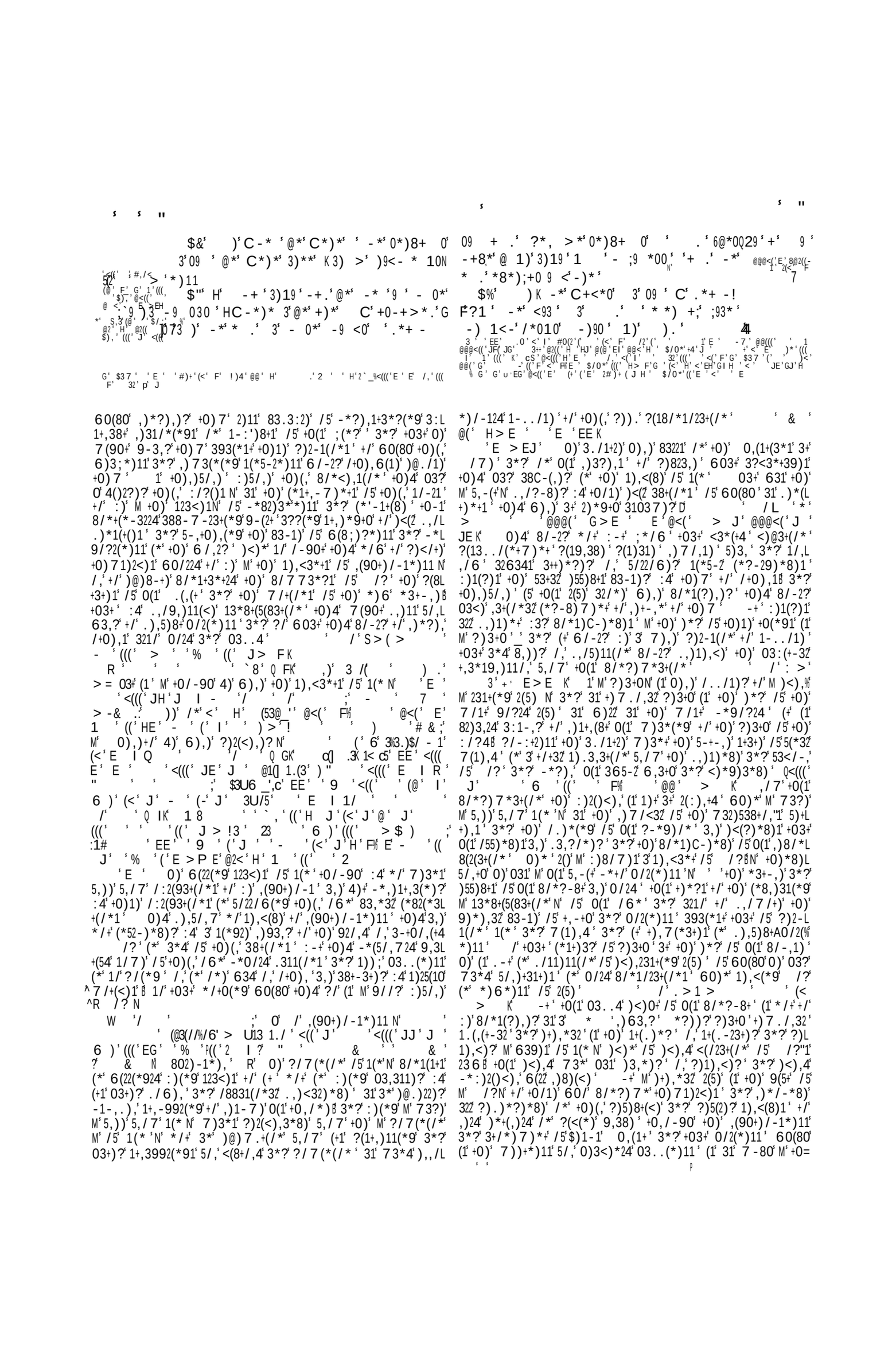


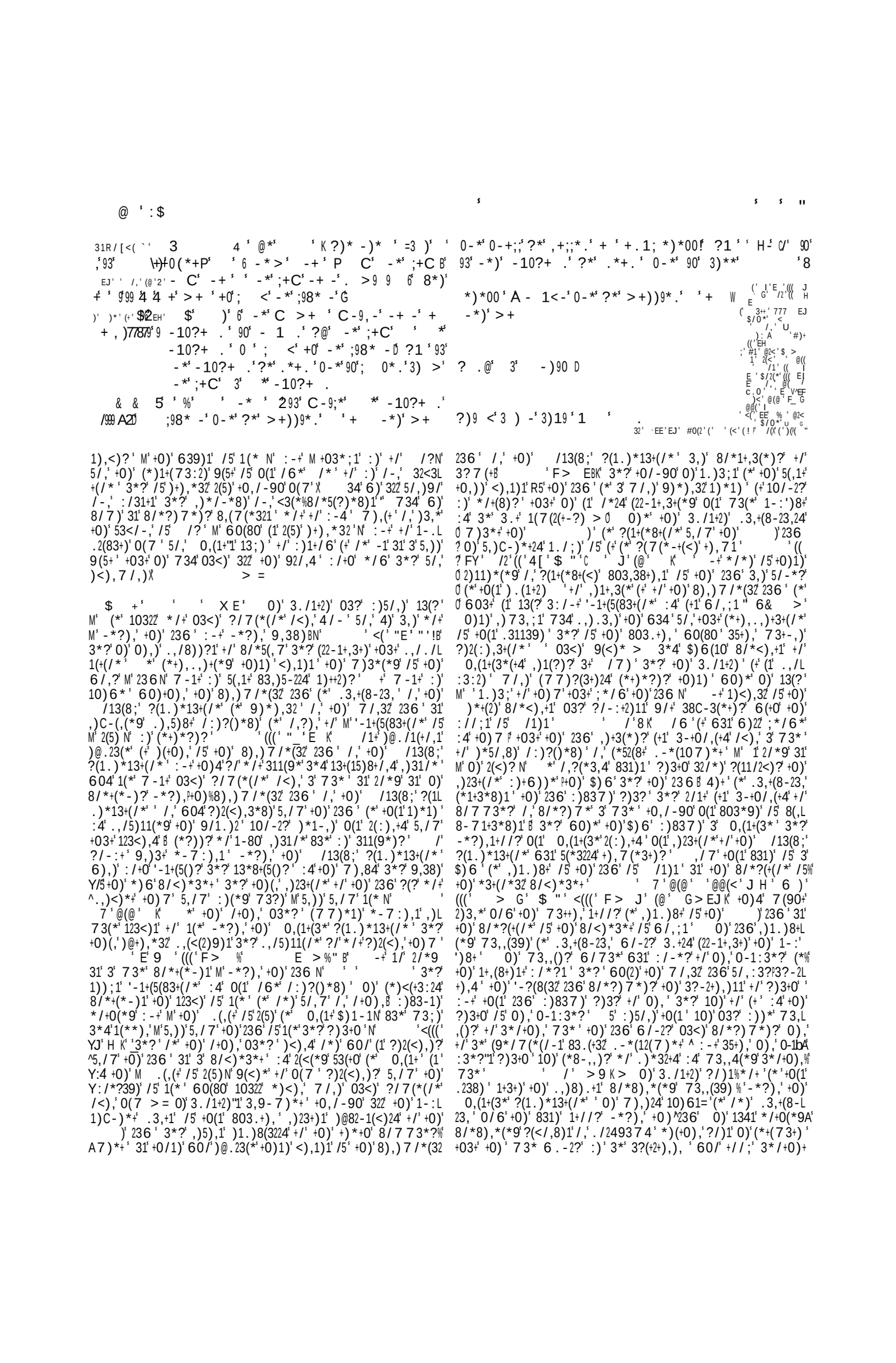


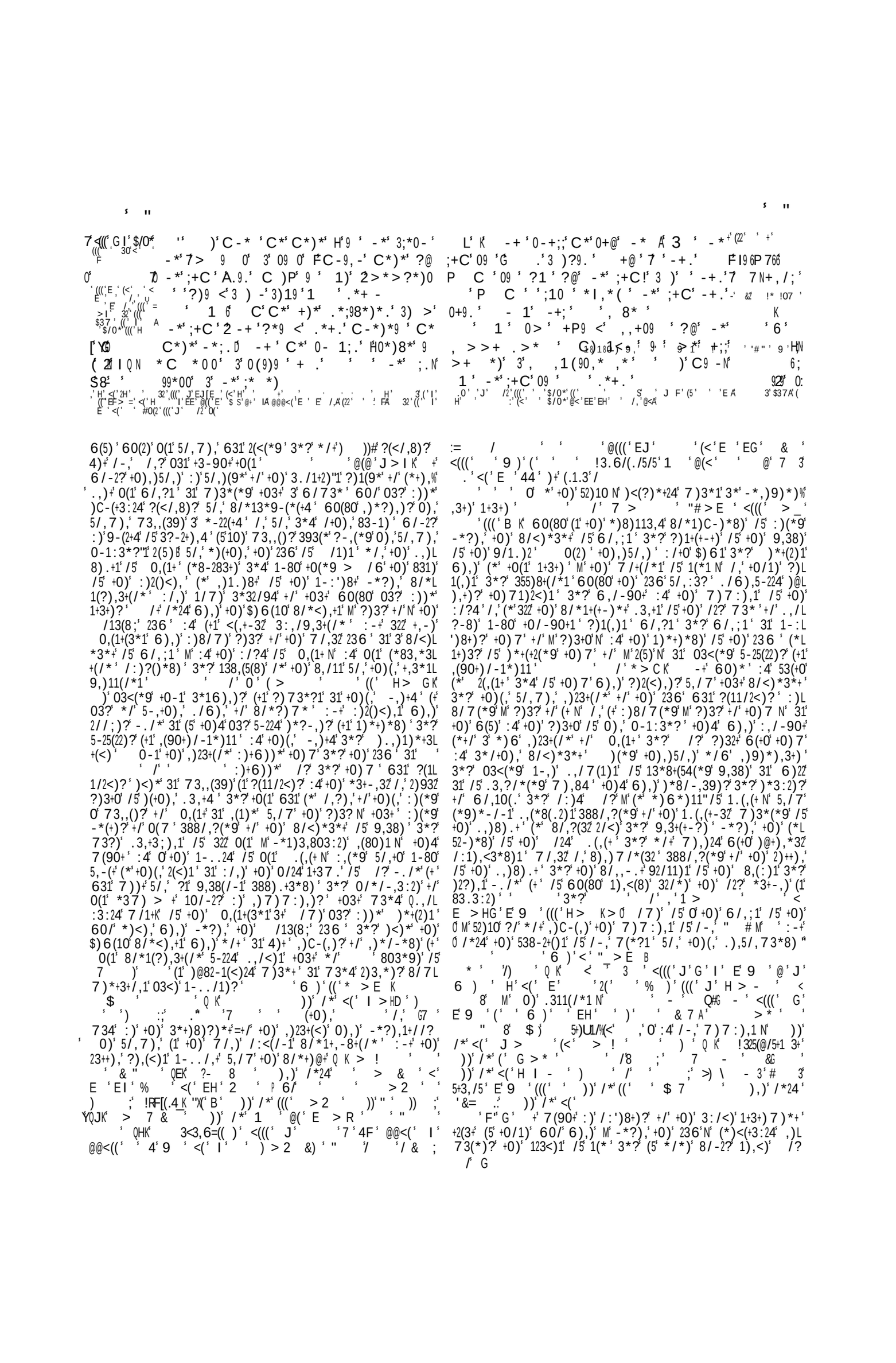


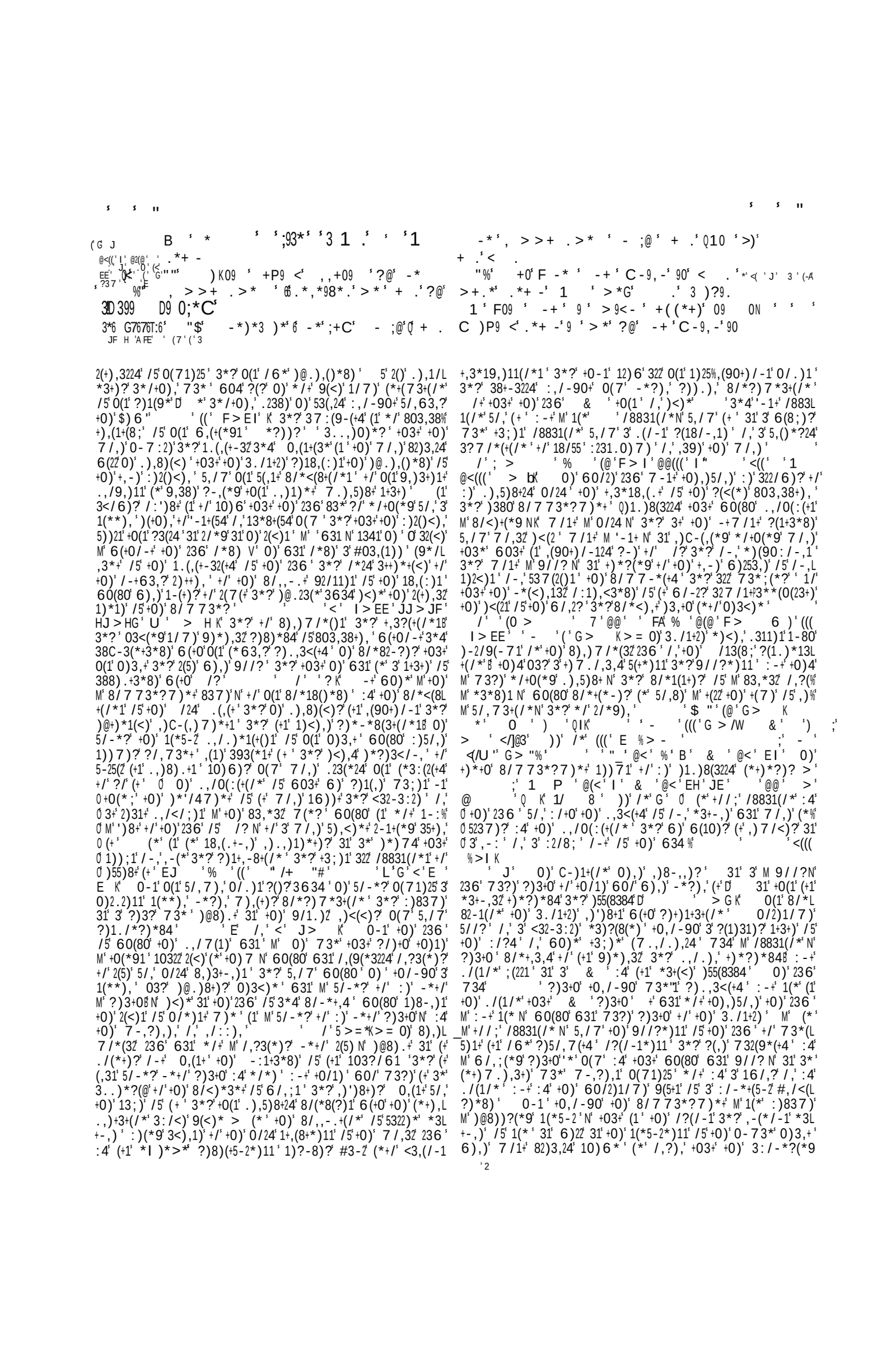


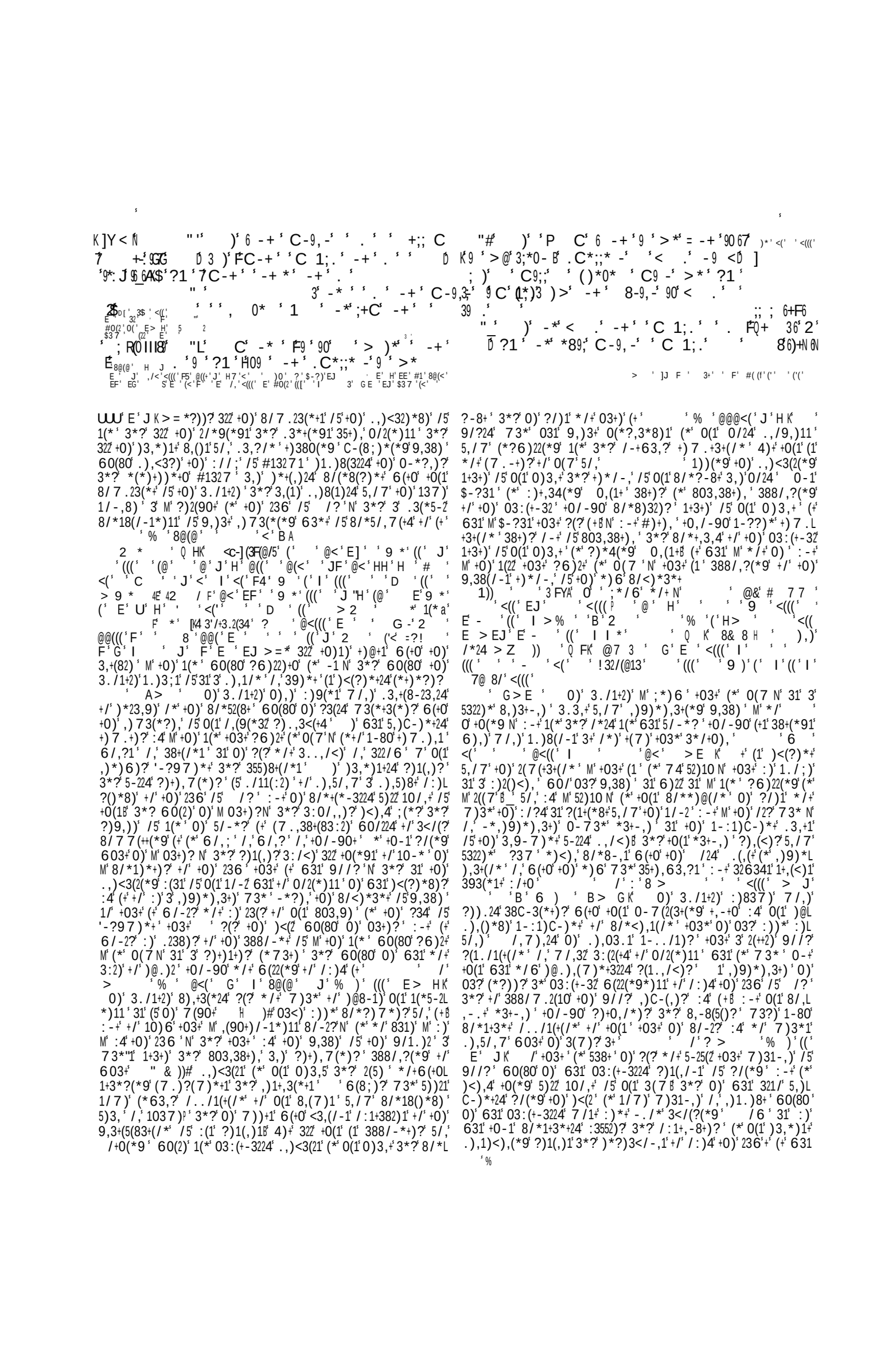


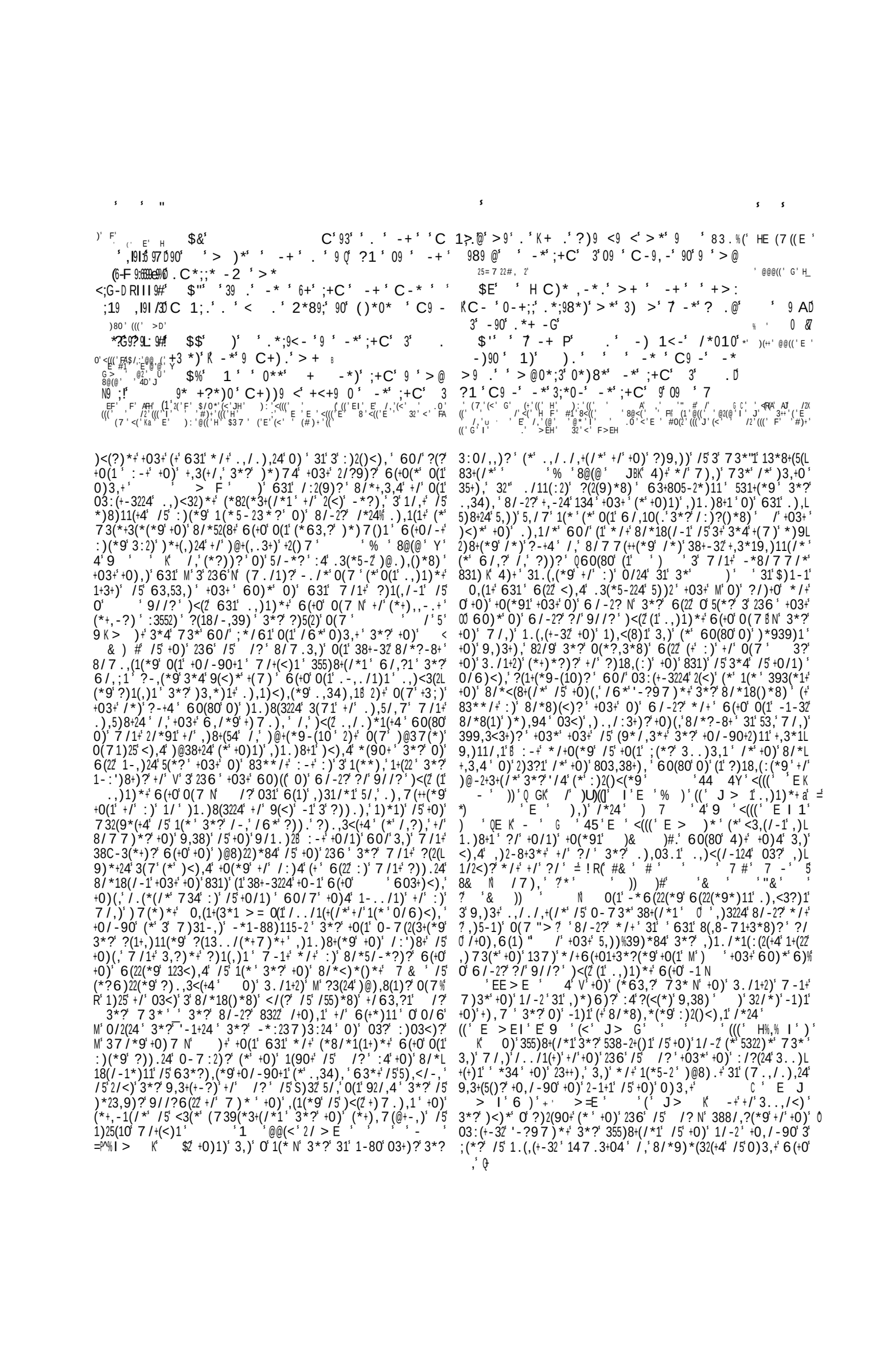


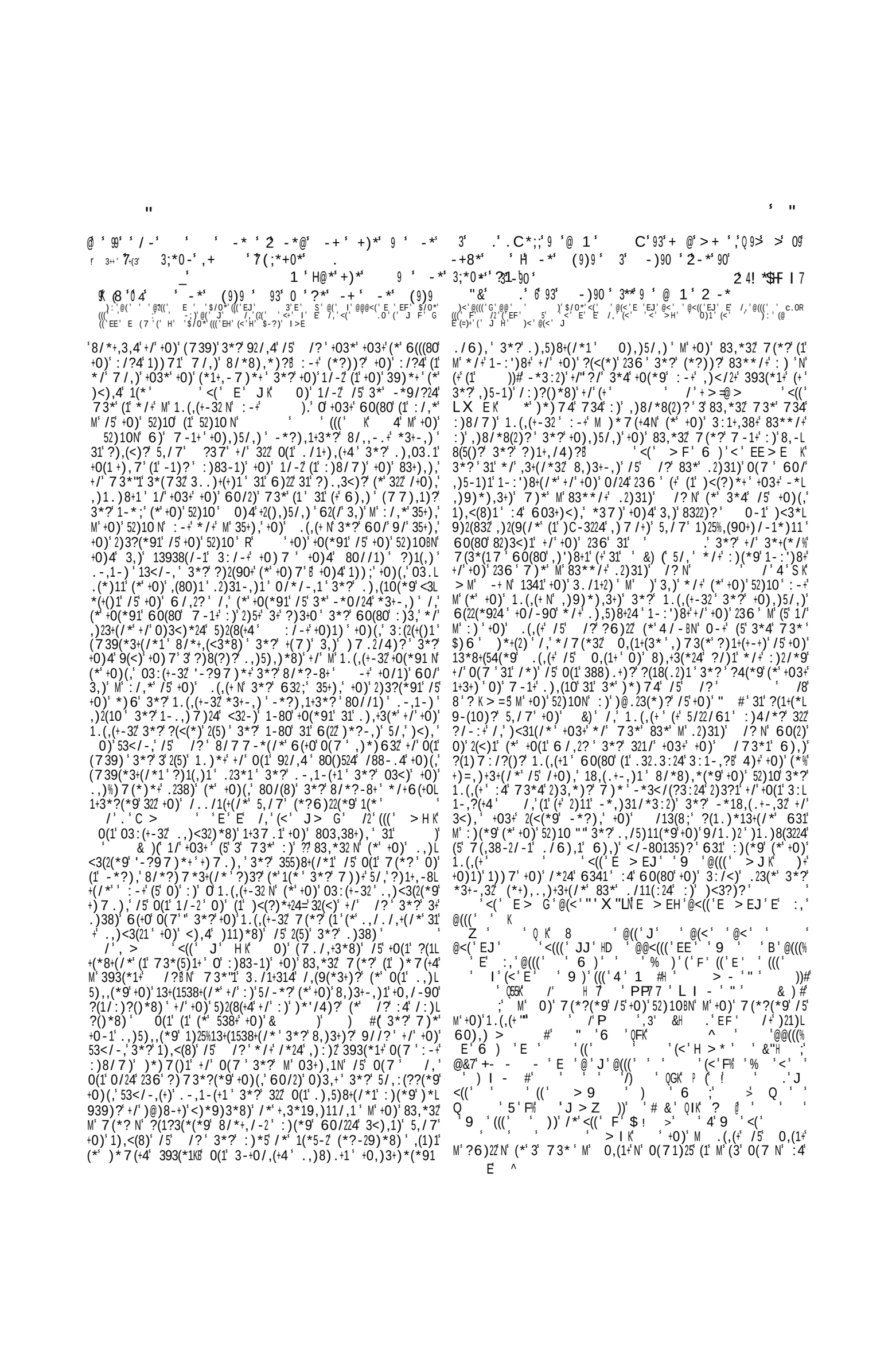


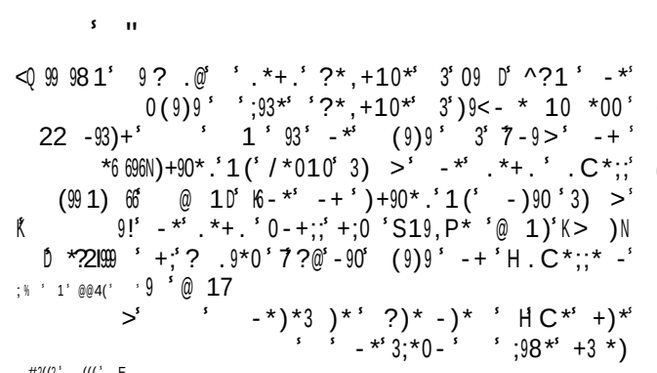


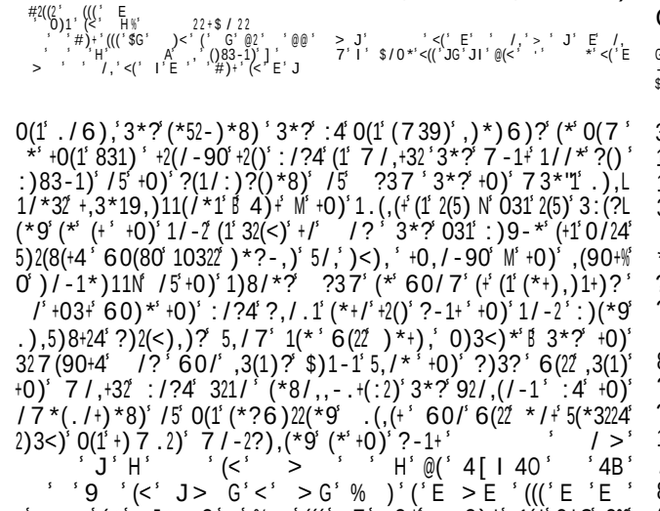


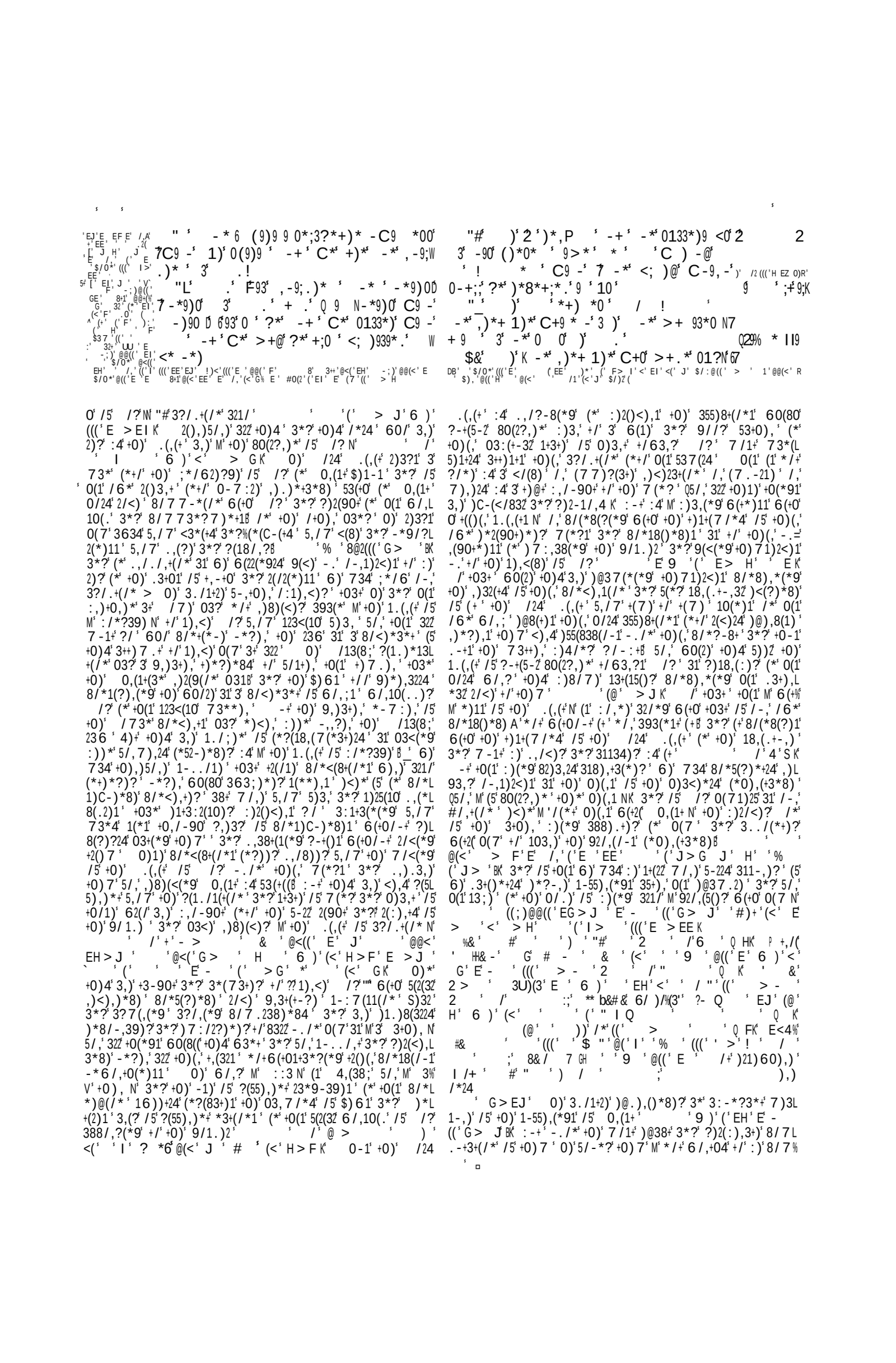


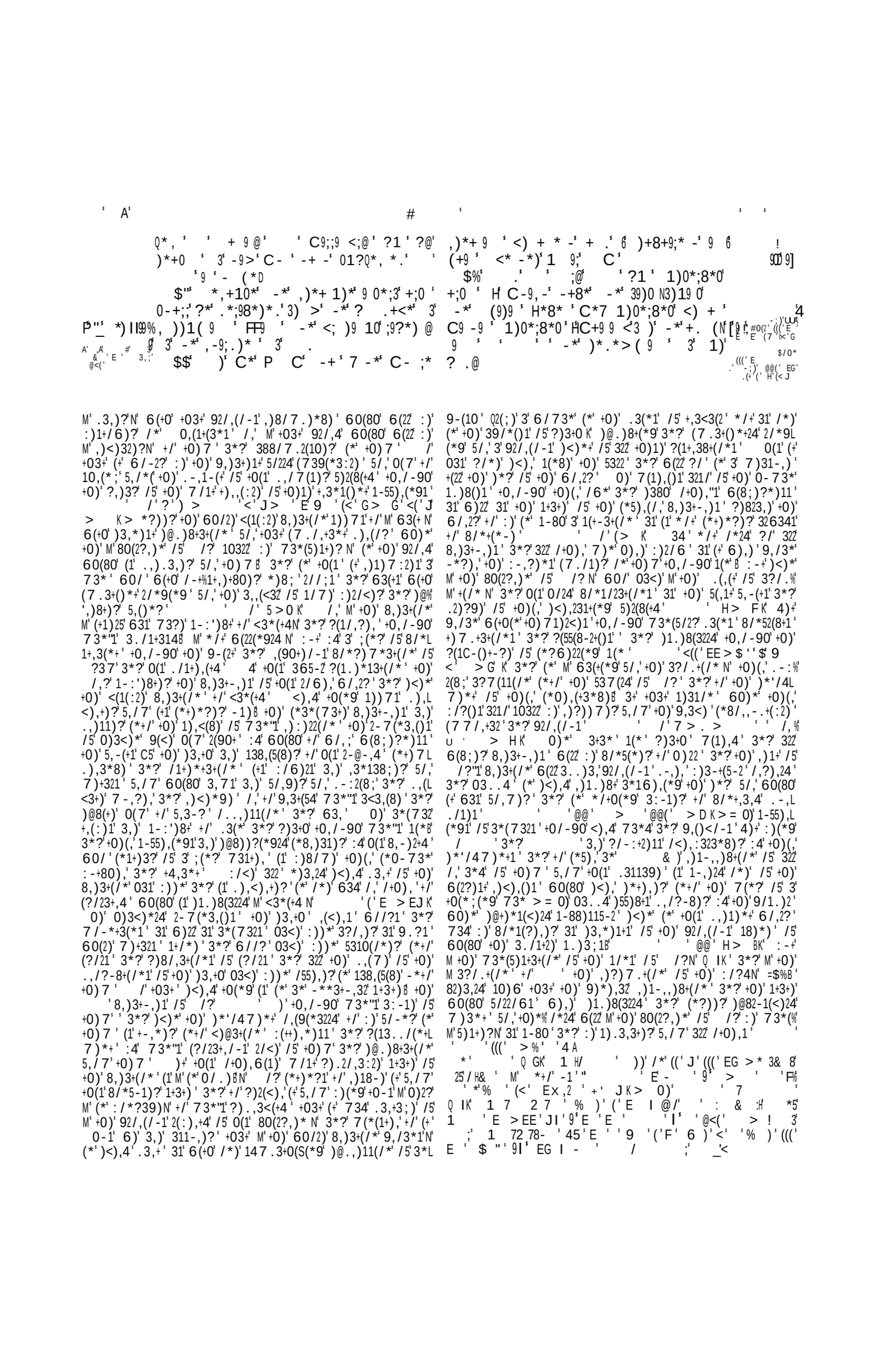


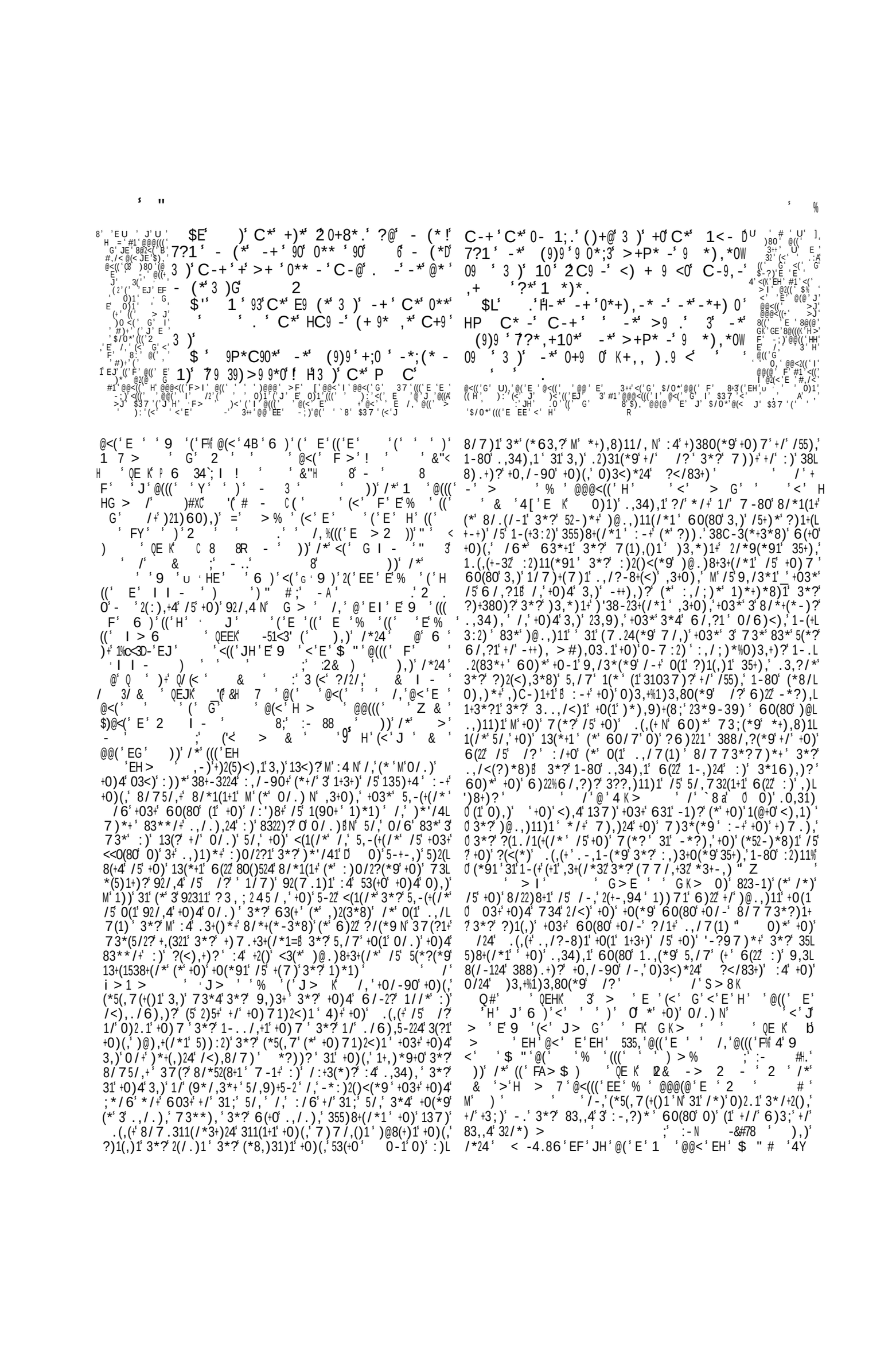


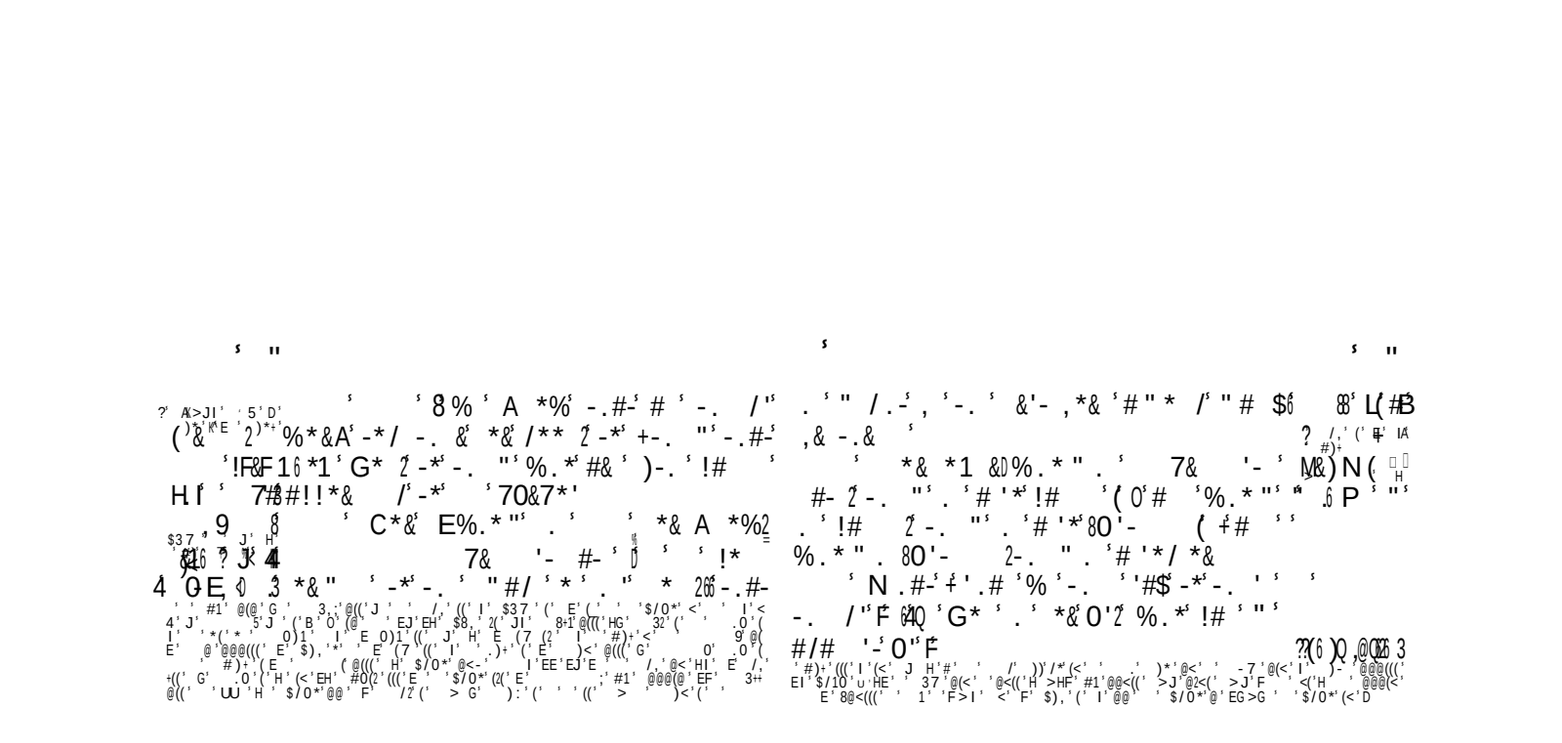






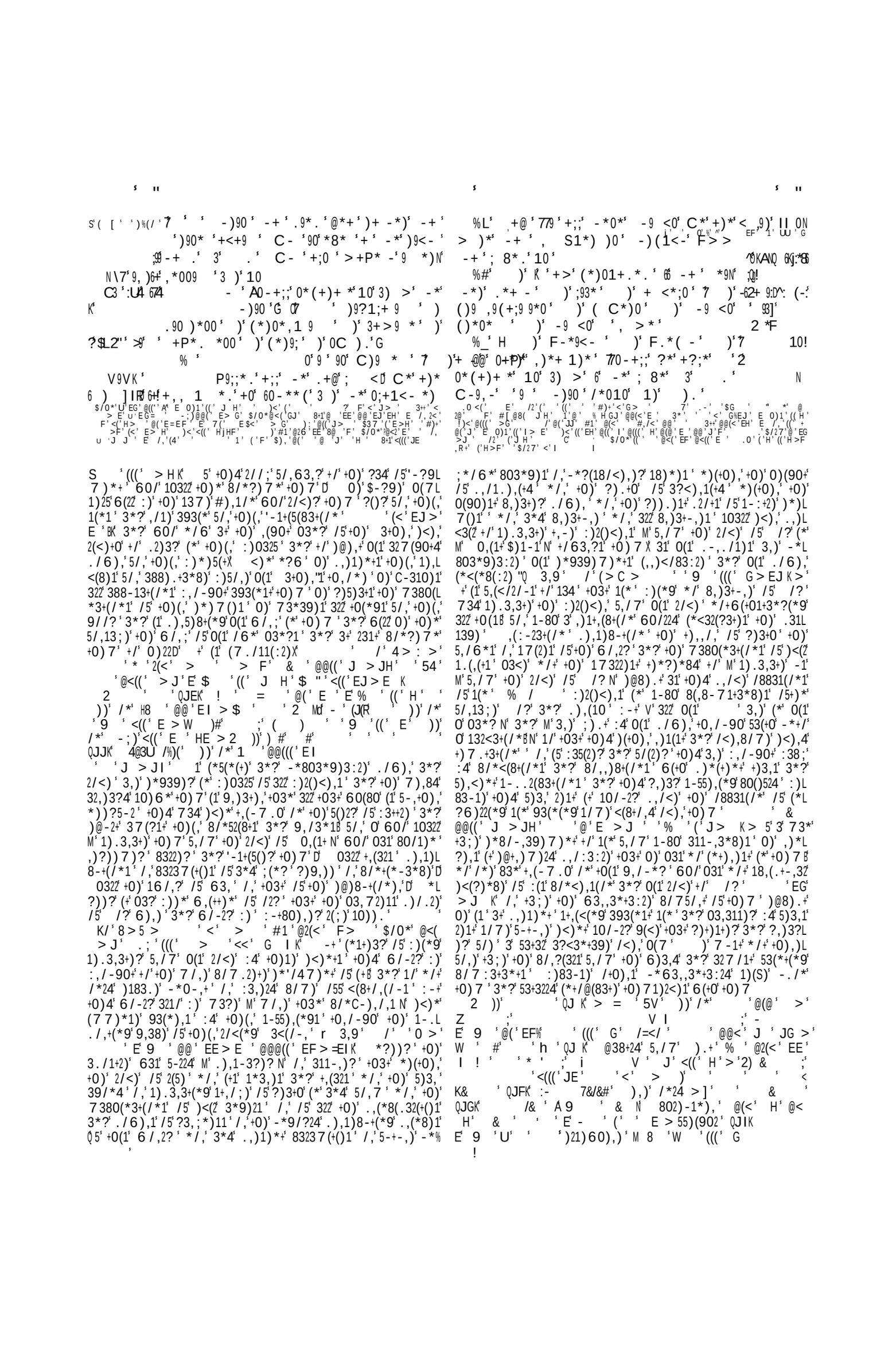


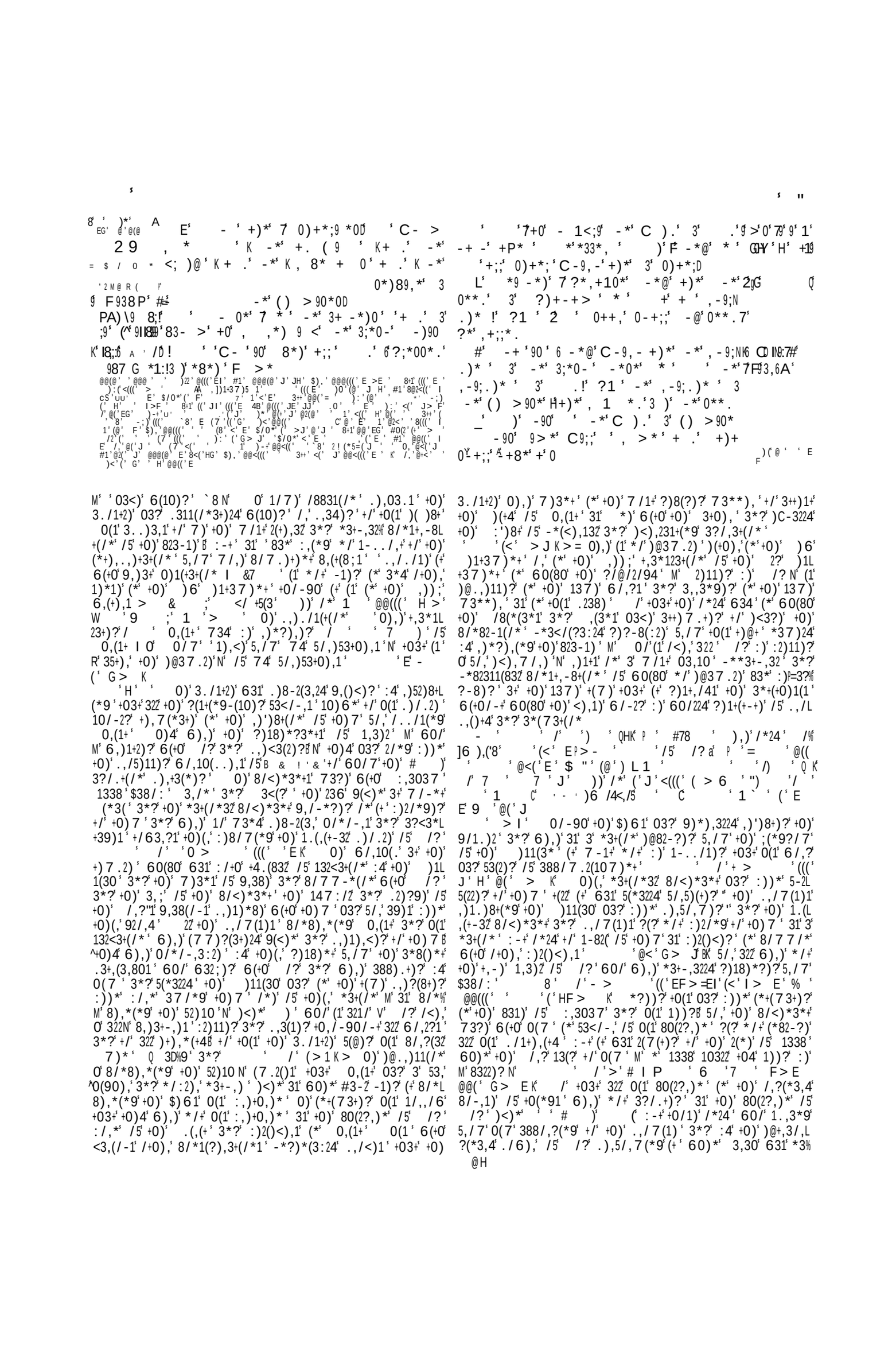


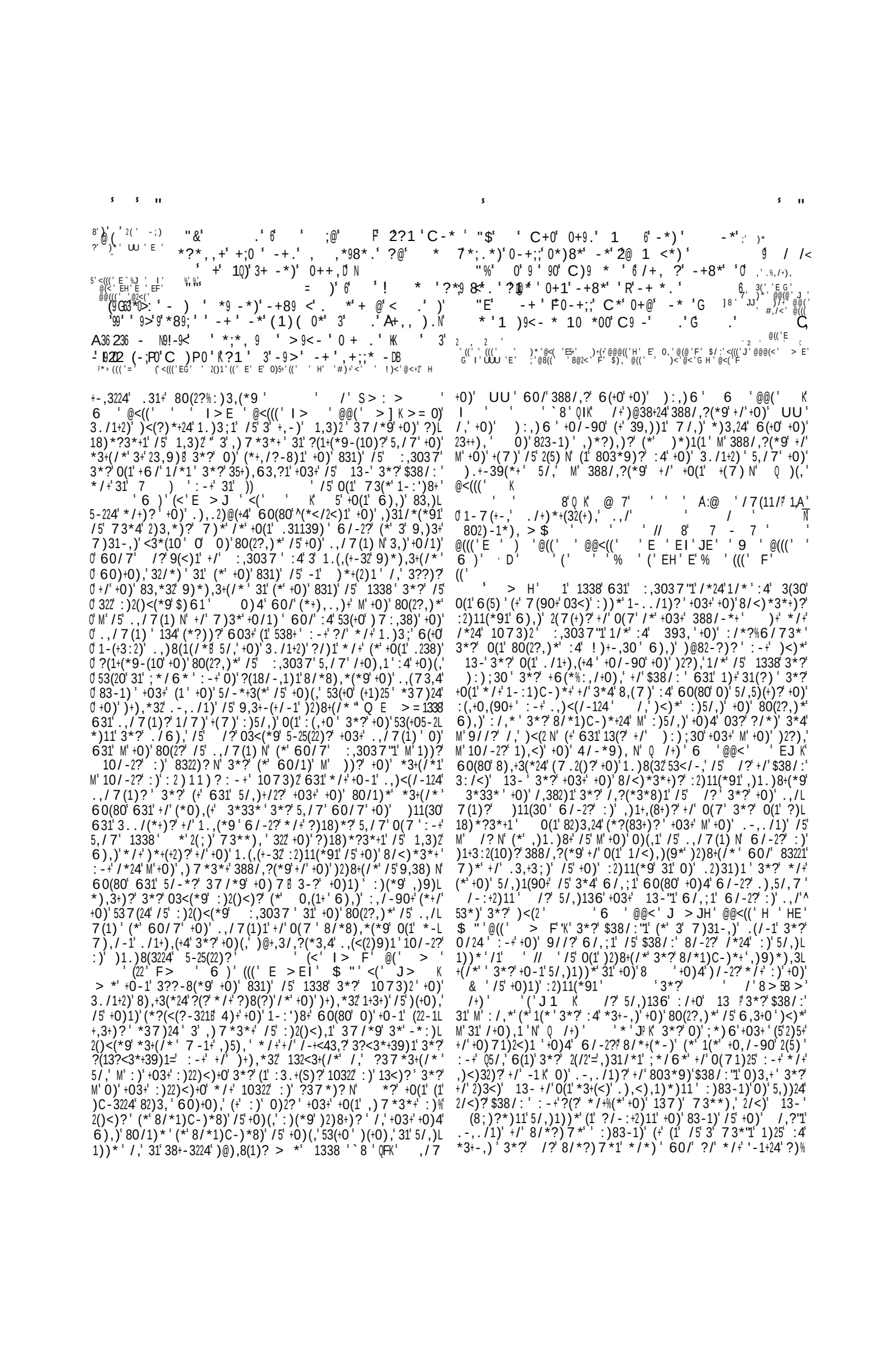


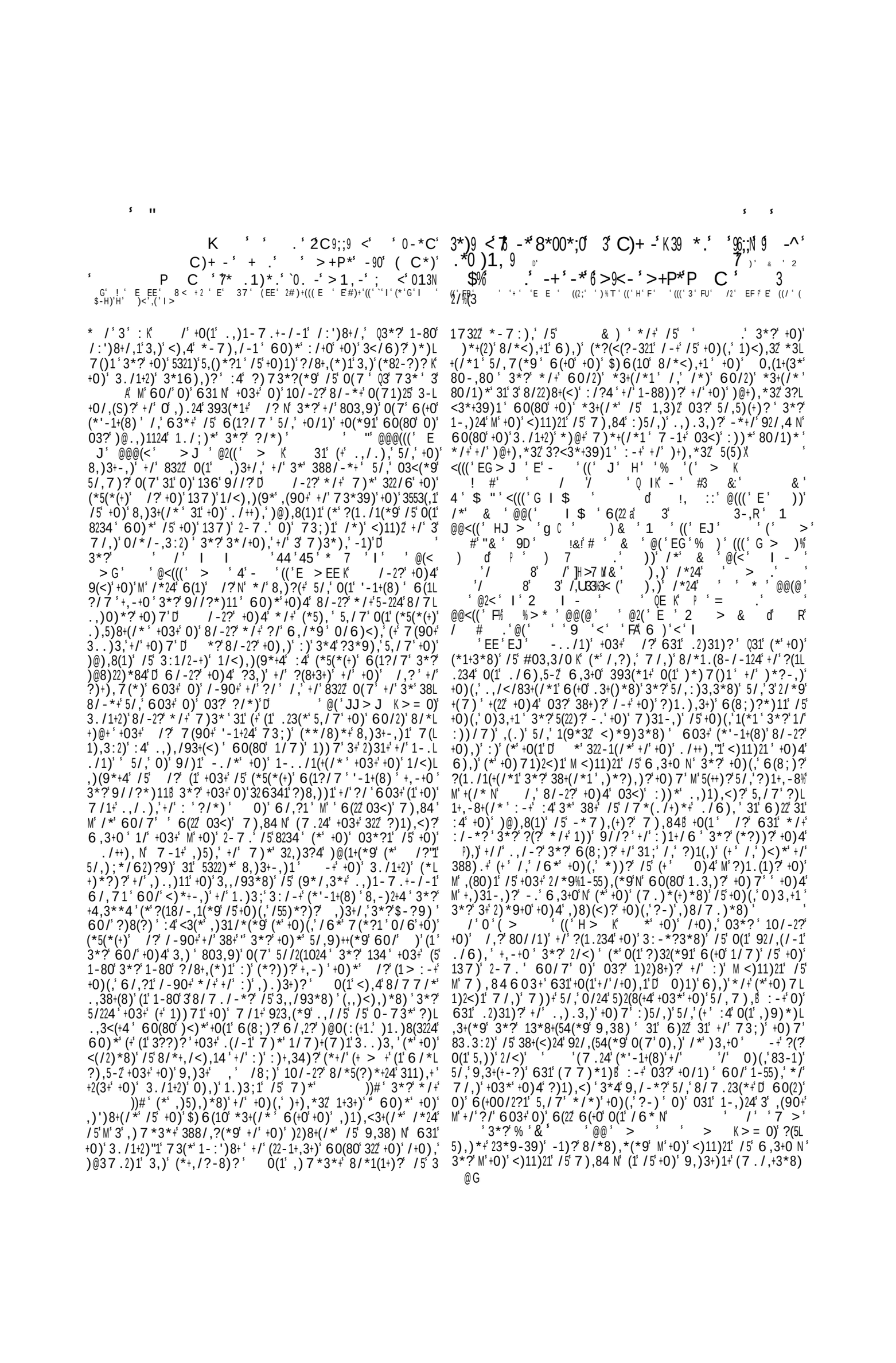
-&#7 1 @@(<J > 6 :; 8 #G 1 <((
JH /+) 21) 6 0),) > 7 ((EH <(2) 65+-
EJ >! " & :; 1H8 > 3),) /*24 >
$ QEFK 0 b& 7 8
9 ((EJ >)) /* JI > -
/ 2 ; 3 +* & -)) /*
EG > J ,/ 7 +0) .,)8)?(*9 8/*1(?),3+(/*1 +0)
3./1+2) 311-,)?24 8/*82-?)?+03+ 322)<)*+1 (*2(5)*/,?)3+0
8/*8-,,)?(* .,/7/+(*9 +0))+),*32 9//?* /5)<),4 +,-)
:)2()<), 0/6)<),:(++),3*?* .3(*5-2 +0)4 7(90+ 3+ .,)1)*+
:)B 5/,*/+0(*9 8/-2?)<),?)5)3+ +0) 9,)3+)*?. ,/./1)?
(* 322 +0) ?(1.)*13+(/*1 /5 /?,)1.)8+(*9 +0) 7)<)*+0)(,
)<),231+(*9 132<3+(/* > #,/<(?)*+(32 3../(*+7)*+1 3,)?/-:+L
2)11 .,(24 (*+)*?)?: -+ 31 +0)1)/5+)*+ 2)3?7)*+(*+/
+)7.+3+(/** 3*?1/.,/<) /5 1(* 6)8/-2?03<)
*/311-,3*8)+03+ +0)4 6/-2?0 322 6/,;+/9)+0),5/, M
(5 6) 6),) 3:1/2-+)24 +/) @8).+ +0))(5)8+1 /5 /-,/6* 1(*
3*?5/224 6 @@((K 0) 1(*1 (*?)))?))<)*+ /5
+,-) :)2()<),1 3,)*/+ 3263411 /<),%,-2)?5/,+0),(,(*8,)31)
/5 .,)1)*+ 9,38) /,/5 5-+-,) 92/,4 (* +0(1 ,)1.)8+ +0)4
0 1-55),2/11 3*?3,)13<)?31 :4 5(,)B N 9 (((
> BK 4)+ +0) 60/2) 8/*8-,1 31 /*) 8/7.2)@.23* +/
.,).3,) +0) 7 5/,+0) (*0),(+3*8) (*+)*?)?5/,+0) 7 3*?
73*4 /5 +0)(,/6* 7(1+3;)1 3*?7(183,,(39)1:)(*9)#
/6/,;+/9)+0),)7(*)*+24 5/,+0)(,0-7(2(3+(/*
3*? +0) (*8,)31) /5 +0)(,9,3+)5-2 2/<) /)?:) >
4 9 @@@((EH > JJ @@<(I > F E 9
@((F > % [> K 1 53,31 +0)4 38+
3*?M 0(1 ?3 7*3+(/* 6(22 :) -1+ N /+03+ 6) *)?*/+
(*<32(?3+)+0(1 3*(7 3+(*9 311-,3*8) +/ 9-3,?(+ 5,/7 +0)
.),<),1(/* /5 6(8;)?7)* 31 1/7) 03<)?/*) +/ +0)
9,)3+ ?(18/-,39)7)*+ /5 0-7:2) 0,(1+(3*1 60/ 5)3,
*/+0(*9 1/ 7-80 :4 53,) <)* (* +0),(103,.)1+ 3552(8+(/*1
31 +0),(/6* 237)*+)?*./.)*1(+4 +/ 1(* @ E
^> J K > = 0) .),1/*1 (*+)*?)?/*8) ?(?*/+ M 2/<) /? N
> I 'K :-+ +0)4 03?:))*0 8322)?N (*+/
3 1+3+) /5 ,)8/*8(2(3+(/* 3*?2/<) +/ 0(7 0 388/,?(*9 +/
0 0(1 .-,./1)N 3*? 80/(8) /5 +0)7 60(80 0) 6(22 *)<),
1-55),+/ :)5,-1+,3+)?3<(*9 (* 0(1 (*5(*(+) :-+ (*8/7L
.,)0)*1(:2) 6(1?/7 3*?,(90+)/-1*)11 .),7(++)?+0) 5322
3*?3./1+314 /5 7 3* 0) 2//;)?-./* +0)) &
/ & 3*? 7)) 5/,(+ 4)+

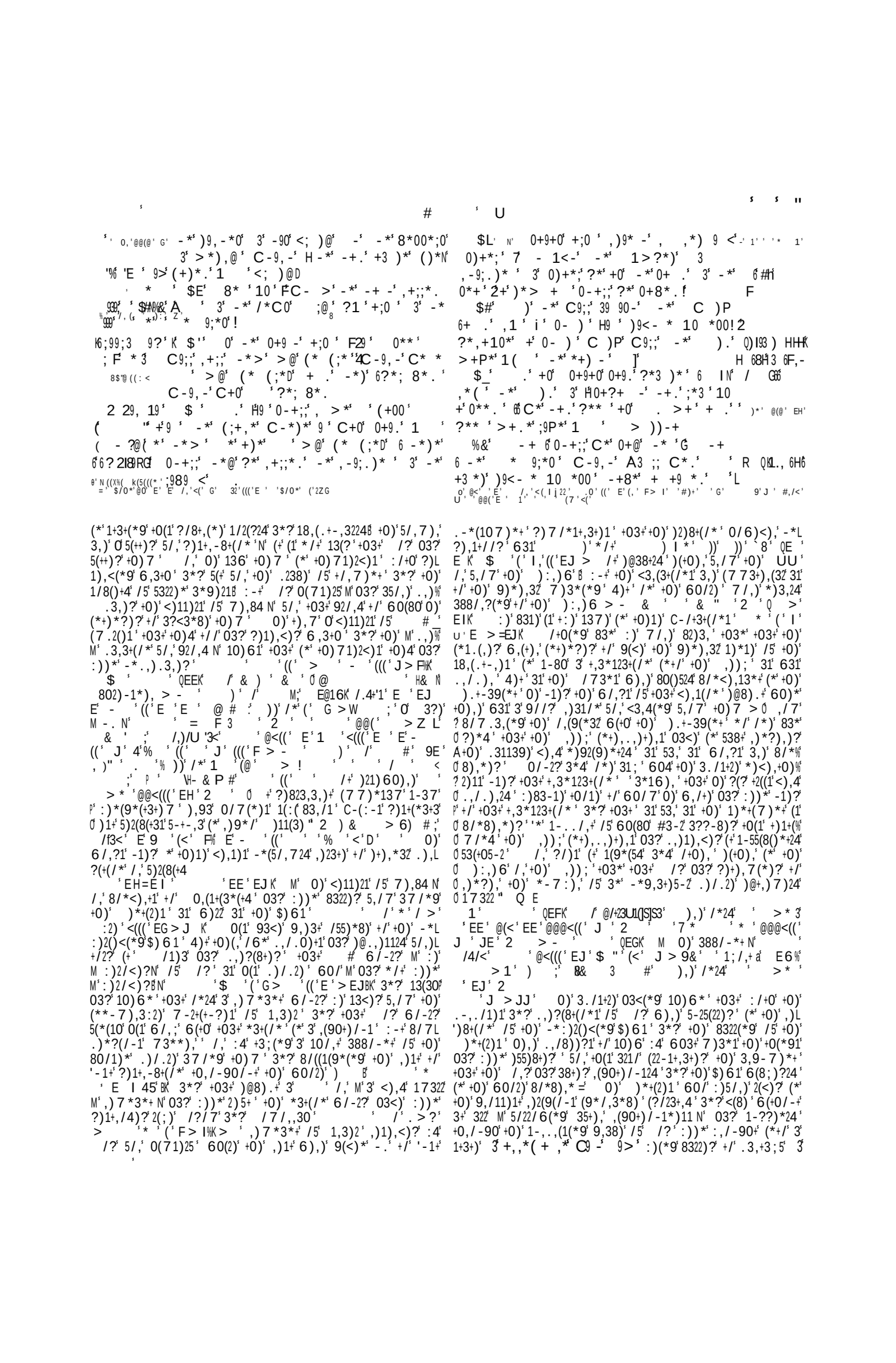
.-,,./1(*9 +/ .,/<(?) 3*?,)<)32 3 9,38(/-1 132<3+(/* +/
+0)7 5/,+0) 92/,4 /5 0(1 *37) 0) ;*)6 +03+ +0)4 6/-2?
31 8),+3(*24 ,)')8+ +0(1 132<3+(/* 31 +0)4 6/-2?:,)3;0(1
0/24 236 /,,)31/*1 +0),)5/,) */ +,)<)32?+/ -1 0)
?)+),7(*)?+/ 2)3<)1/7))# +/ .),(10 (* /:1+(*3+)
)*7(+4 3*? &)# +/ ,)8/<), /+0),1 :4 ,)9)*),3+(/*
3*?)55(838(/-1 9,38) 0)1) M 0) 5/,) ;*)6 N */+ 7),)24
(* ,)1.)8+ /5)@+),*32 .,(<(2)9)1 /,31 3 .3,+ /5 53</-,)?
*3+(/*1 :-+ 31 (*?(<(?-3224 80/1)*+/)+),*32 2(5) 5/,(*
8/*1)C-)*8) /5 +0(1 5/,);*/62)?9) M 0) .,)?)1+(*3+)?N
/," / +0)7 0 +/ :)8/*5/,7)?+/ +0) (739)/5
M 0(1 1/* N /5>0 > 1 ((EE > EH K
+0(1 2(5) +0)4 3,) (.3,+,)*)6)?+/ 0(1 0/24 (739) 3*?
632;(* 0(1 1+) .1 3*? 03<(*9 .311)?2(;) $)1-1 +0,/-90
734 4 1-55),(*91 +0)4 6(22 0),)35+),:) 8/7.2)+)24 8/*L
5/,7)?+/ 0(1 0/24 0-73* *3+-,) :/+0 (* :/?4 3*? 1/-2B
+03+ 1/ 0) 734 3..)3,37/*9 +0)7 31 M +0) 5(,1 :)9/++)* N
3*?)3? M /5 +0) 73*4 :,)+0,)* N 60(80 10322 8/*1+(L
+-+) +0) 537(24 /5 /?+03+:)(*9 3?7(++)?+0,/-90 0(7
+/:) 80(2?,)* 3*?0),(1+0)4 734 +0-1:) 73?)7))+6(+0
0(7+/) 0/4 +0),(*0),(+3*8) > F K 1 +0(1
631 +0) 0?)+),7(*)?.-,../1) 3*? 5/,);*/62)?9) /5
M /?N ,)1.)8+(*9 +0)7 1/ 322 +0) (*+),7)?(3+) 1+).1
6),)C-3224 .,)%?)+),7(*)? 0-1 +0) /,?0 83221 N +/
,).)*+3*8) 53(+0 (* 0,(1+3*?*)6*)11 /5 5(5) <),4 /*)
60/7 0) 031 M .,)?)1+(*3+)?N 0) M -1+(5()1 N +0,/-90
+0),(90+)/-1*)11 /5 0,(1+) <),4 /*) 60/7 0) 0 83221
3*?0) 6(22 5(*3224 M 92/,(54 N <),4 /*) 60/7 0) M -1+(%
M 5(2)1 N /9*K> 3*8+(5(83+(/* (1 */+)@L
.,)1124 7)*+(/*)?(* +0(1 9/2?)*) 803(* :-+ 0 .,)?)1+(%
0 *3+(/*+d:)8/*5/,7)?+/ +0) (739) N 5 0,(1+) 55)8+-32
8322(*9 3*?5(*32 92/,4 1/?)18,(:) +0) :)9(**(*9 +0) ./L
9,)11 3*? +0) 8/*1-7 73+(/* /5 13*8+(5(83+(/* +03+ */
/7(11(/* 83* (* +0(1 ,)1.)8+ :) (7 .-+)?+/ +0) 3./1+2)
+0) 23*9-39) /5 53(+0 3*?0/.) 0) 1.)3;1 /5 +0) 60/2)
6/,;31 32,)3?4 ?/*) :)83-1))*1-,)?:4 +0) -.,/1)1
3*?.,/7(1)1 /5 /?3*?0) ?)73*?1 603+ 83* :) 13(?
-*+/ /,393(*1+1-80 +0(*91 /,(5 /?:) +0-1 M 5/,
0 -1 N 5,))24 3*?3:1/2-+)24 /-,-*803*9)3:2) ,()*?
3*?+0-1 ?)+),7(*)?+/ :2)11 -1 6(+0)<),231+(*9 5)2(8(+4
60/ /,603+ 83* :) 1/393(*1+ -1 31 +/ ?)5)3+ 0(1 9,3L
8/-1 .-,./1)D ,603+*))?03<)6) +/ 5)3,+0) ,39) 3*?
./6),/5 322 8,)3+-,)=(5+0)4 10/-2?8/7:(*) 393(*1+ -1 D
/ . K > ,/7 +0(1 3*?1(7(23, .31139)1 1/7)
.),1/*1 03<)3:1-,?24 1./;)* /5 /-, 03<(*9 :))*H& /
/ #` 8 :-+ +0) /7 /5 ?/(*9 3*4
+0(*9 (1 .),5)8+24 ?(1+(*8+ 5,/7 +0) &) / /
/? 31 3:1/2-+)24 ?)+),7(*)?+0) 5(*32 92/,(5(83+(/* /5
)<),4 :)2()<), 31 0) ?(?+0) -1+(5(83+(/* /5)<),4)2)8+



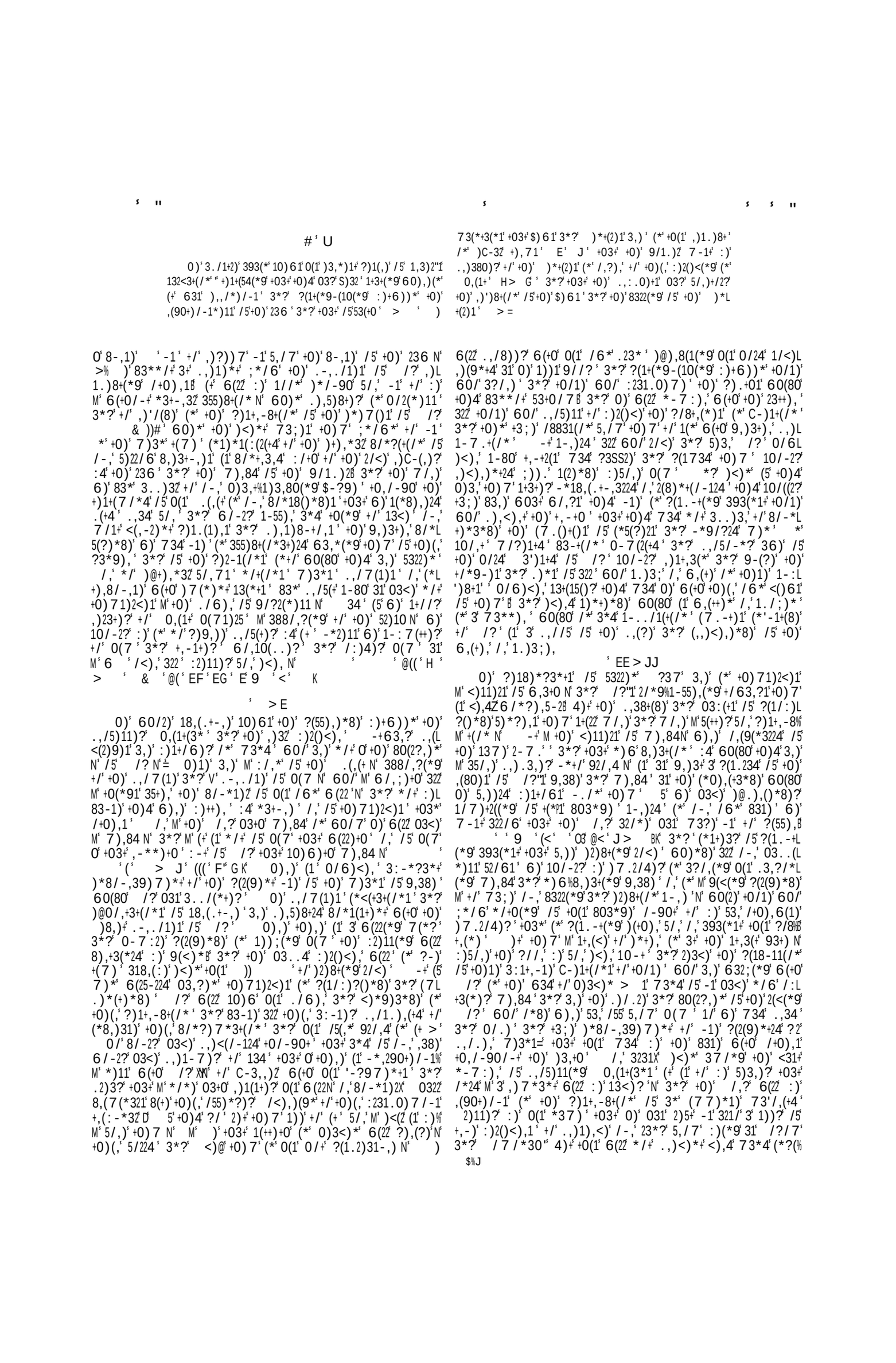


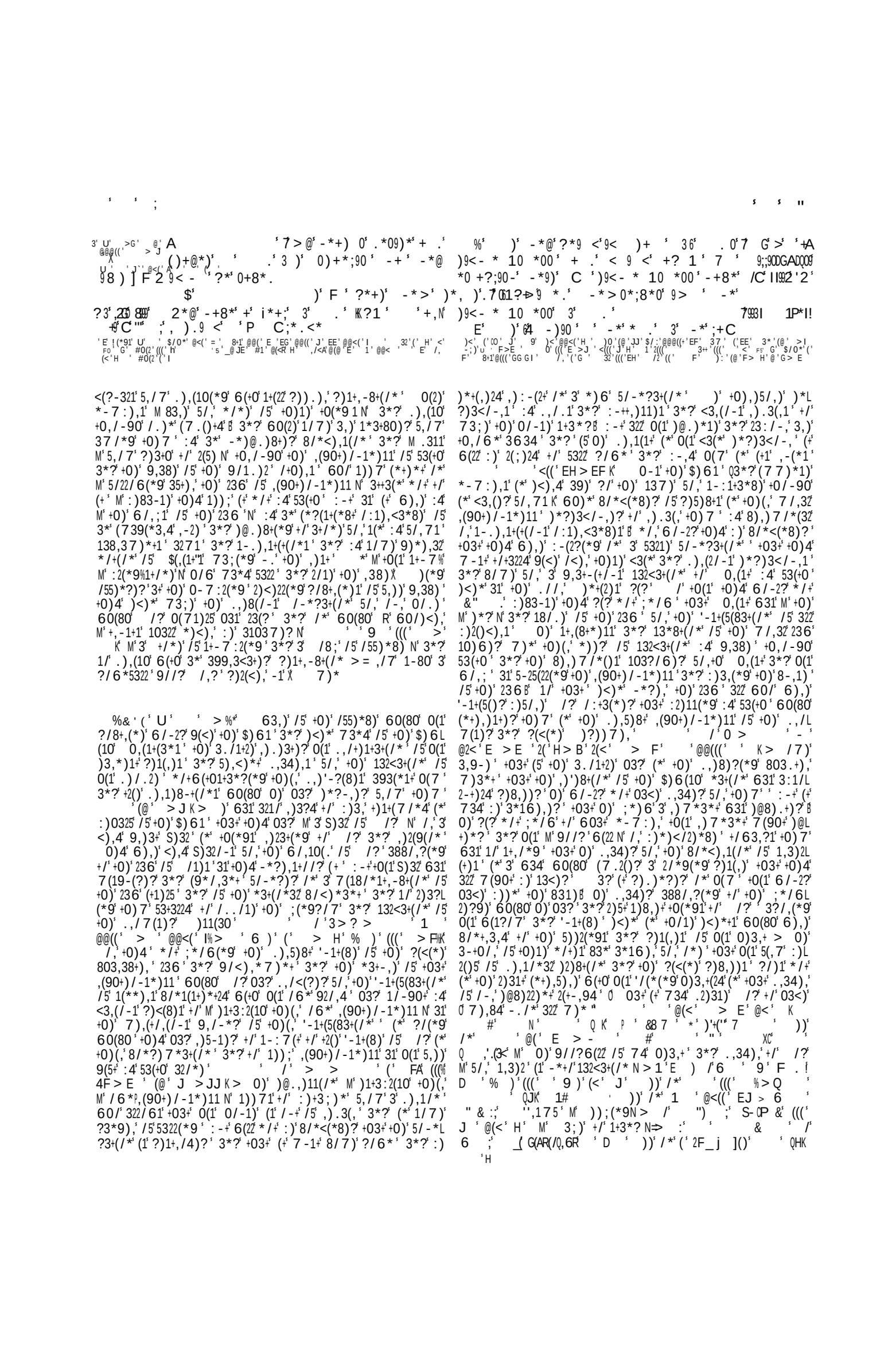


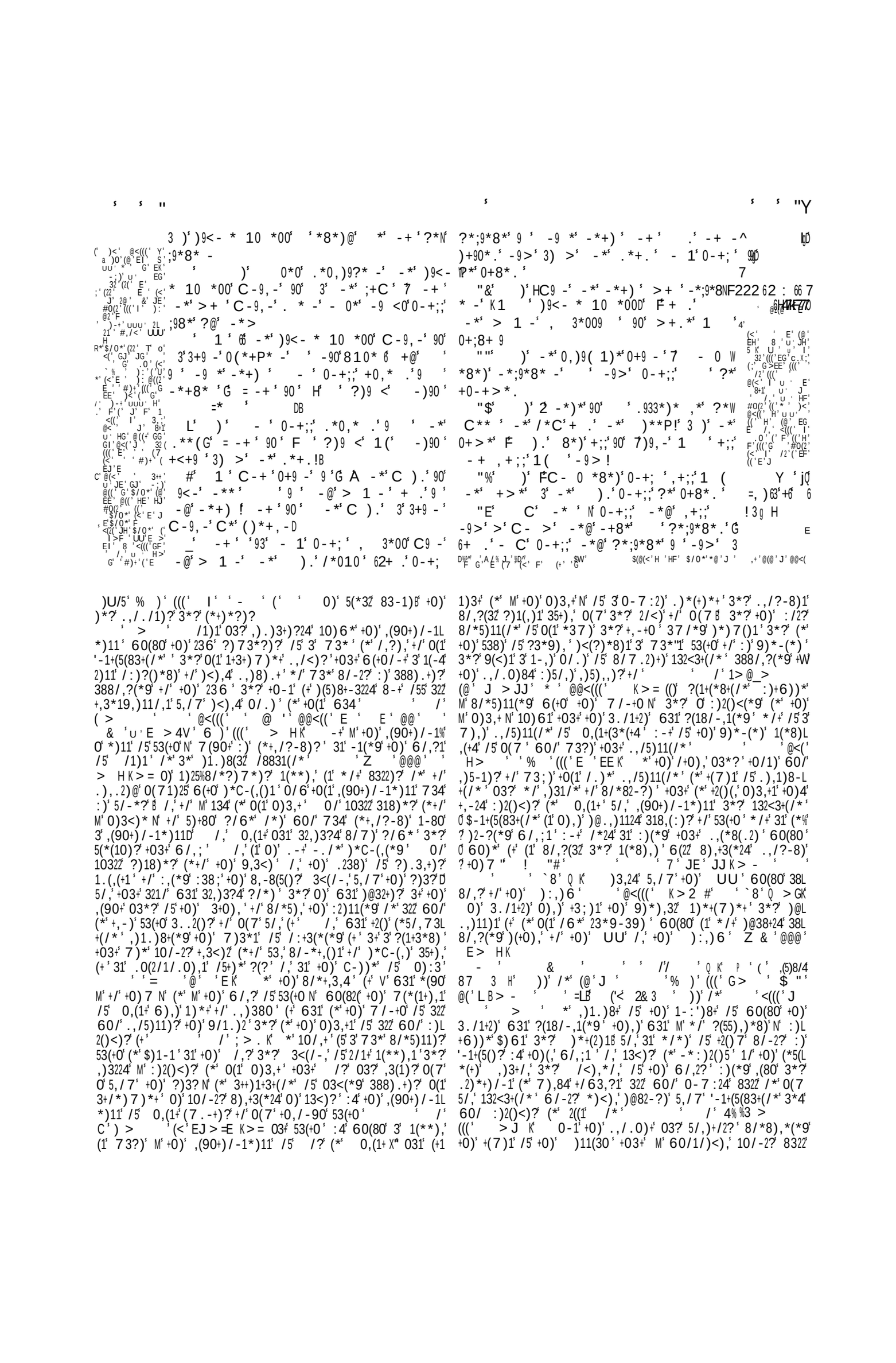


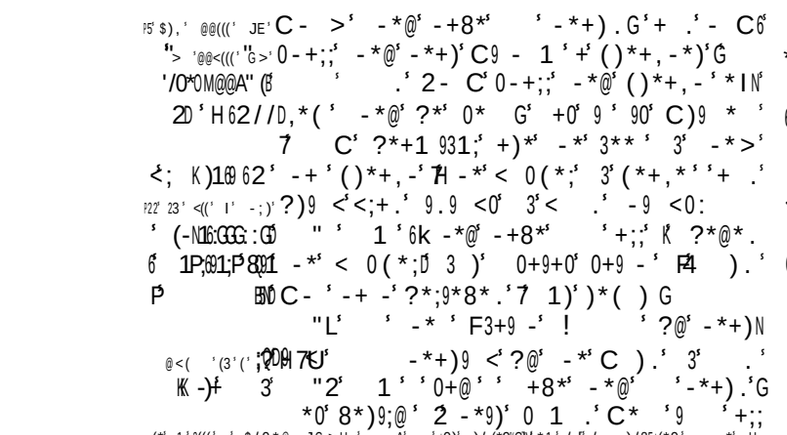


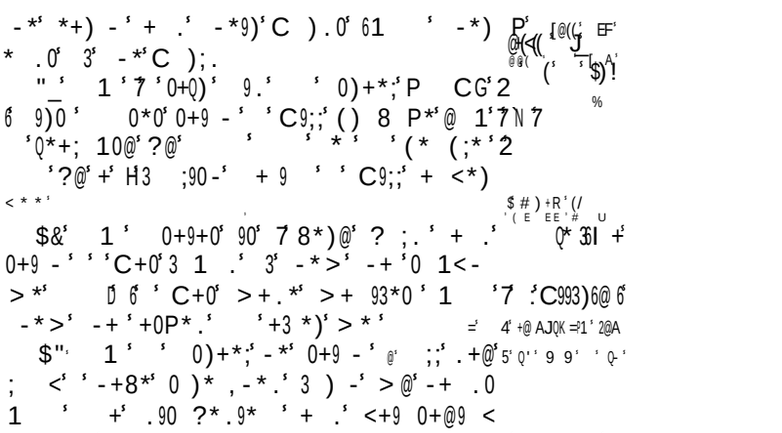
U

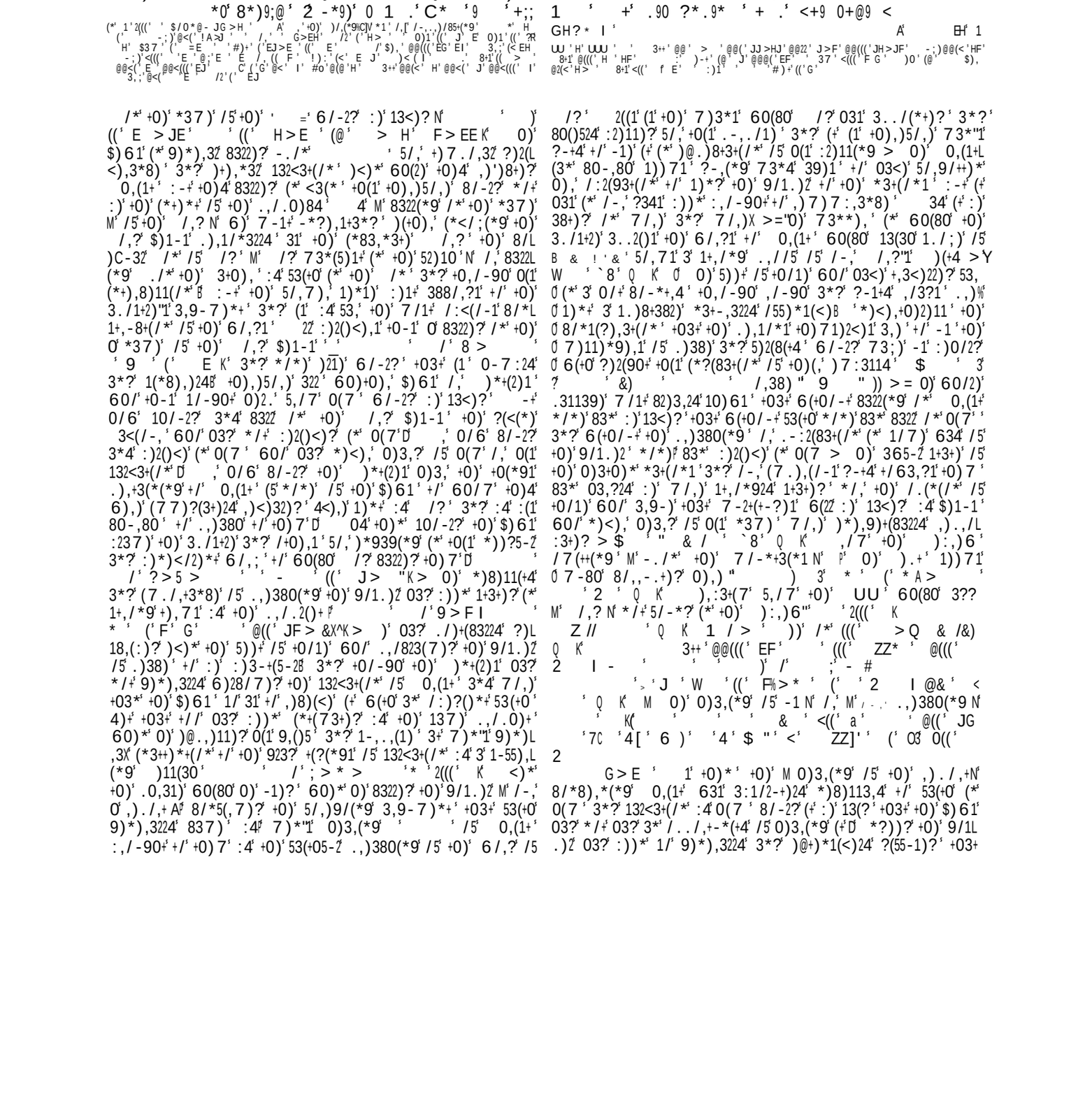


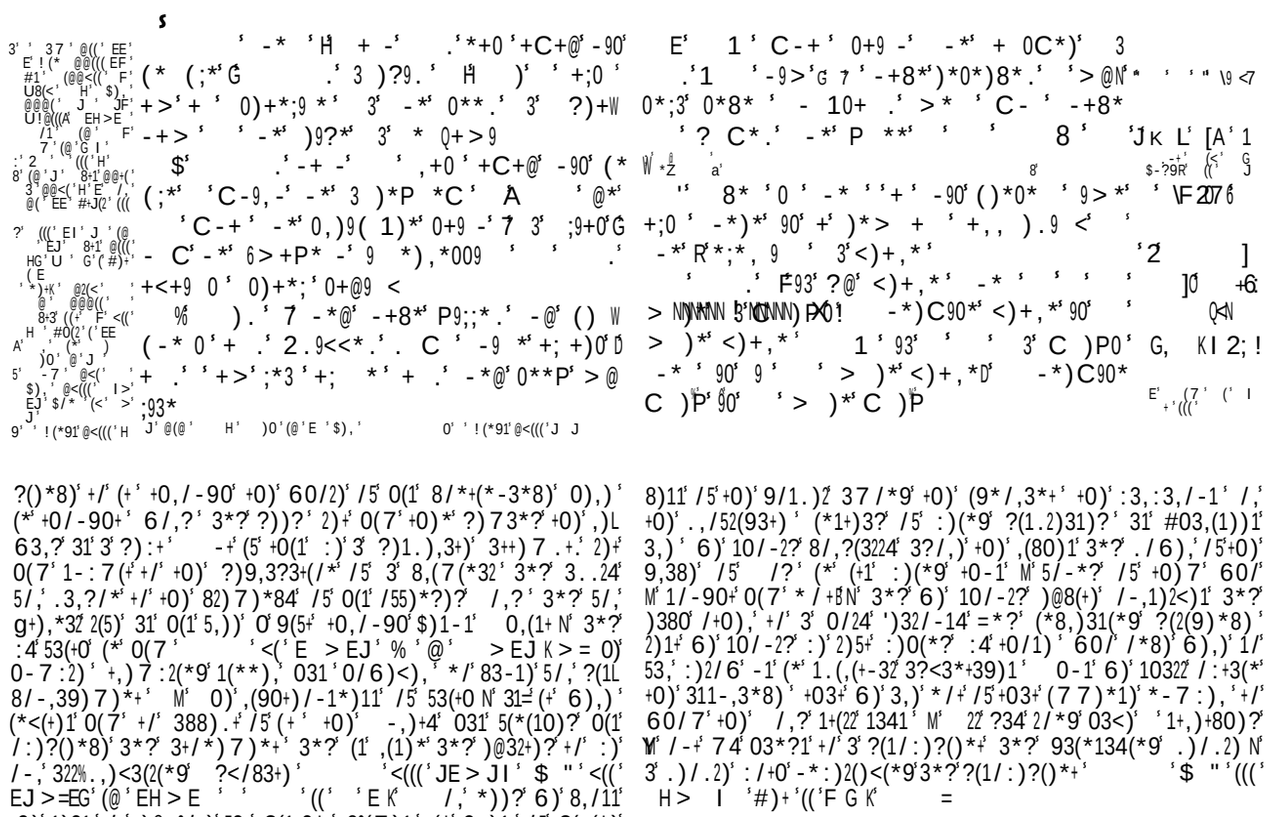


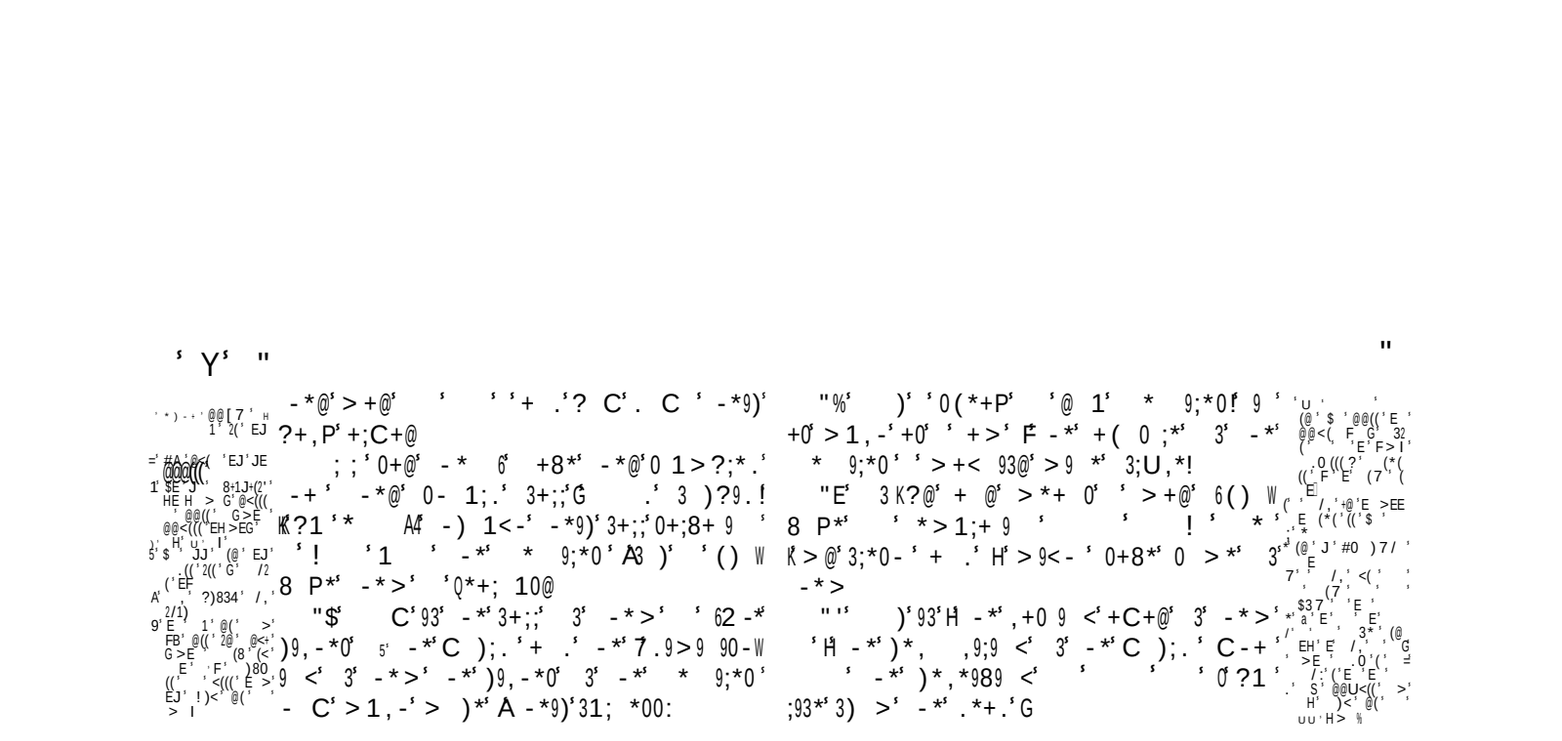










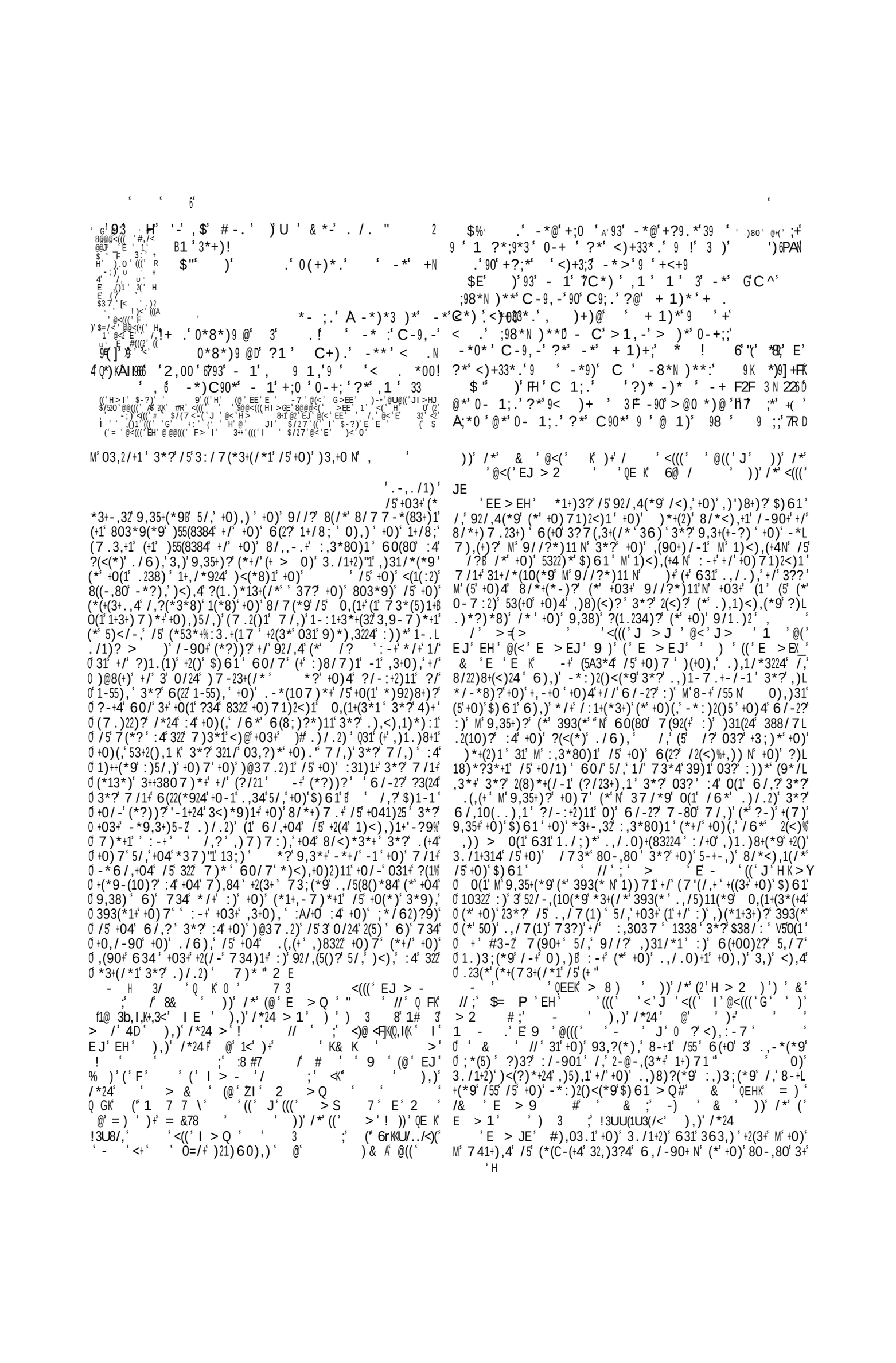


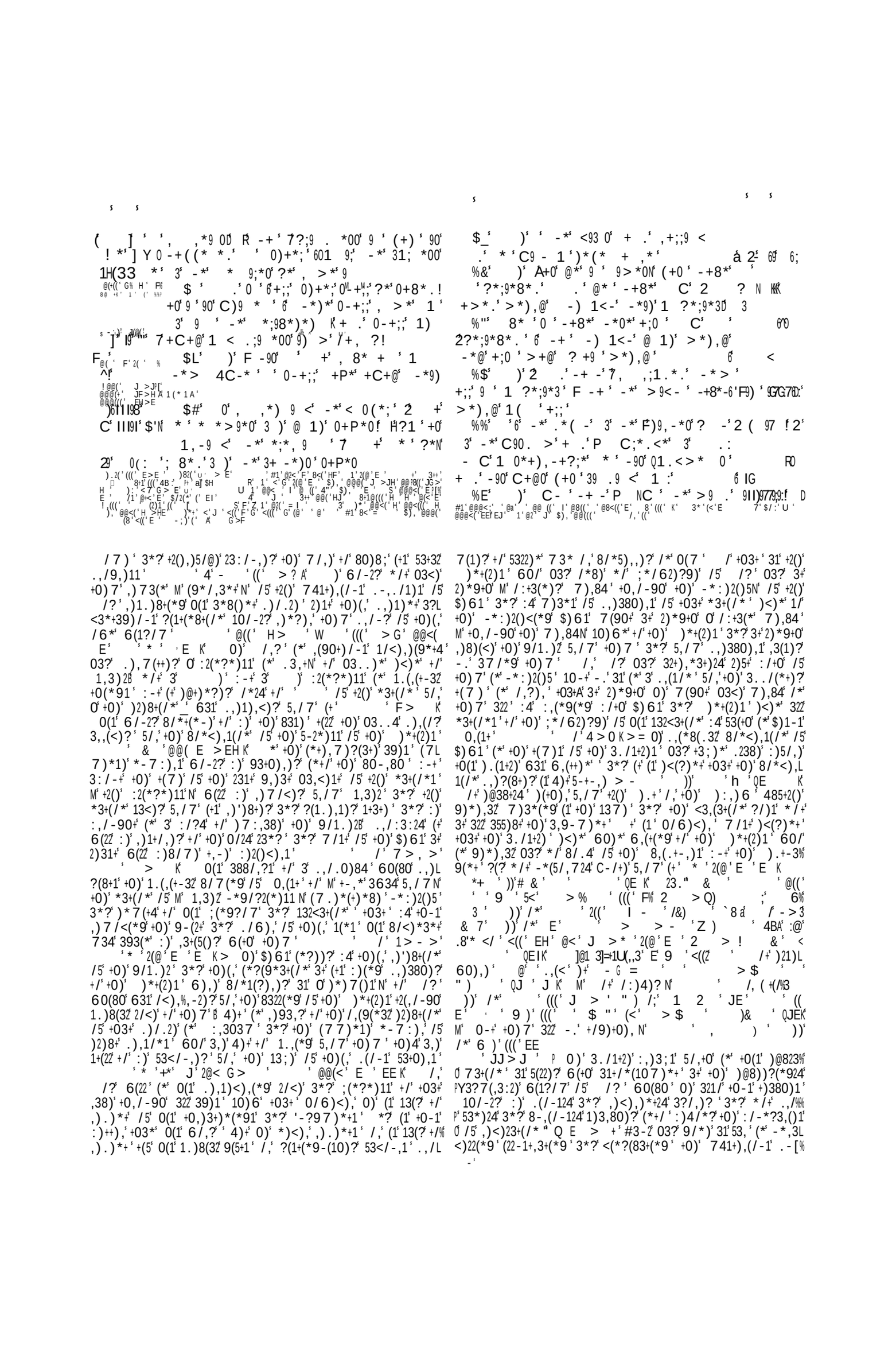
1-:18,(:)'B 4)+' 0)' :4' */' 7)3*1'3?7(+1'+0/1)'8/*1)C-)*8)1'
60(80' *-7:),1' 60/' 0'1.)3;')<(2' /5' 603+' +0)4' -*?),%
0'1+3*?' */+N' (*?(18,(7(*3+)24' 803,9)' /*' 322' 60/' 0/2?'
$0)' ?/8+,(*)' /5' .),1/*32')2)8+(/*' +/')+),*32'2(5)'
7'(<'E'E'-'(('G>EK' 0)'3./1+2)'1))71'+/'03<)'
9(<)*' +0)' 1)*1)%/5'+0)'1)<),32'.,/.0)8()1'+/'+0(1'55)8+'
,)5),,)?'+/' ,3+0),'+03*' +0)')@38+'6/,?1'5,/7'+0)').+-3%
92*+' /,'3' 2(+),32' +,3*123+(/*' 5,/7' +0)'):,)6' 0' 0)'
?).+-39(*+' 35+),'+0)' -1-32' 634' /5'+0(1'+,3*123+(/*' .-+1'
?+0)' /.+3+(<)" Q/,' ,3+0),' +0)' (7.),3+(<)K' ?5/,'603+'(1'
0'(*' +0)'):,)6' +0)'5-+-,)") ' 0(1'(1' '3..,)L
0)*?' /5+)*' ?/*)' <),4' 9>() (*);@B :-+' 0),)' +0)' 8/*+)@+'
,)C-(,)1'(+B 31'1)<),32'<),:1'(*' +0)'137)' .31139)' 3,)'(7L
.),3+(<)' % '@(@'EE>EGK
- ') 'QFK' P ' >#' '))' /*'(@' I $ '"<
;'$!' $ "'<(' '@('JJ' '(<'E I ! '
") ;'M' 3,?)*)?N' 'O \PHY P '))'/*'
<(' E>2)& " 'QGK'M')7/,1)N' '=) '),)'
/*24' '>*'@@(@' '2 >=) &3 3N 2 '/*'H)
((' > ;'1) 2"GH'2 ' ' & 'C'F4>'
Q ' 'Q K'=@/2(/%-,3(,3<'('E '))'/*' 77 '
4 >Q ' 7# ;'8)7 '),)'/*24' ' >% '@(@
EJ'2 ' @/%-<')+7 '/
' > ' P 0)'3./1+2)'03?'10)6*'+03+' 1,3)2' 631'*/+'
))#' 0'831+' /55'N' 'F> K' 3*?'0)'*)@+')*C-(,)?'
60)+0),'+0)' *3+(/*' (*' 9)*),32' 03?'1/'1+-7:2)?' '/))#'
+/':)'@82-?)?'5,/7'322'5-,+0),'103,)'(*'+0)':2)11(*91'8/<)L
3+)?'+/'+0)(,'53+0),1' /,'60)+0),' /?'03?'*/'5-,+0),'
)*?'(*'+03+'741+),(/-1'?(1.)*13+(/*'+03*'7),)24'+0)(,'532'
3*?',-(*')'6/-2?':4'*/'7)3*1'3?7(+)(+0),'/5'+0)1)'
1-../1(+(/*1' 5/,'(+'38+-3224' 3..)3,)?'+03+'+0)' /,?'(*L
+)*?)?'M'+0,/-90'+0)'-*:)2()5'N' /5'+0)'$)61'+/'8/77-L
(83+)'0(1'132<3+(/'+/'+0)')*+(2)1' 0)'.),1)8-+(/*'/5'
+0)' 0,(1+(3*1'(*' $-?)3' ?,/<)' +0)7' (*+/' /+0),' ,)9(/*1'
3*?'+0)'$)61'(*')<),4'.238)',)')8+(*9'+0)'9/1.)2')@8(+)?'
+0)'..)380),1'7/,)'1.))?(24'3*?'/.)*24'+/'3??,)11'+0)'
)*+(2)1':4'60(80'7)3*1'<),4'23,9)'7-2+(+-?)1'03?':))*
+-,*)?'5,/7'(?/21'+/'1),<)'+0)'2(<(*9' /?'" '1'
<(((' 'H' @(' I > ' @(((' HE > HG' ' - '(' I K')+'
)<)*' +0(1'631'1-(+)?'+/')@8(+)'+0)'$)61'+/'3'0/24'')32/-14'
3*?'3*')7-23+(/*'6(0'+0)')*+(2)'6/,10(..),1'(*'S)32'5/,'
+0)'1),<(8)'/5'B & !'&'3*?')3,*)1+*)11'(*'1)) ;(*9'+0)'
:2)11(*91'/5'+0)')11(30"1' ;(*9?/7'+0/-90'(+/'9)*)L
,3224'03?'+0)'8/*+,3,4')55)8+'+0,/-90'+0)(,'.,(?)'3*?'.,)L
'-?(8)1' '/'8> I '@' G>E K' 5'+0)*'
0'+0)(,'532'N'03?':))*' /<),%,-2)?'5/,'M'+0)')*,(80(*9'/5'
M'+0)'6/,2?'N'(*'9)*),32'6(0'+0)':2)11(*91'/5'+0)'9/1.)2'
(5'+0)'?(7(*-+(/*'/5'+0)'*-7:),1'/5'+03+'2/*9%53</-,)?'
.)/.2)':4'+0)')@82-1(/*'/5'1/'23,9)'3'.3,+'/5'+0)7'5,/7

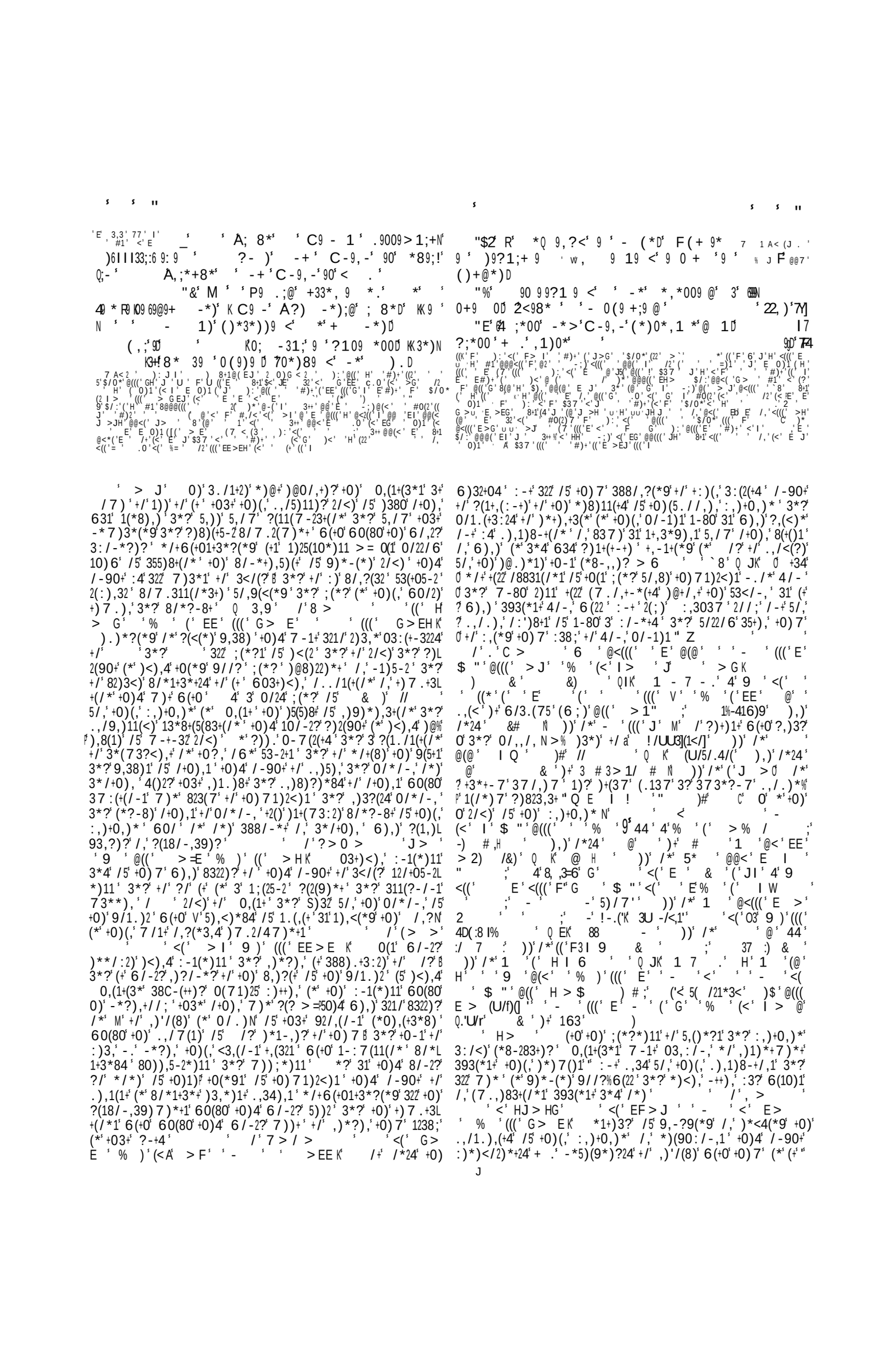
"%')'0(*+P' '@1' * 9;*0!'9 '
+0'>1,-'+0' '+>'F'-*'+(0;*' 3' -*' @@<(,F G'32,
* 9;*0' '>+<93@'>9 *' 3;U,*!
"E' 3K?@'+@'>*+0' '>+@'6() W
8 P*' '*>1;+9 ' ! ' * '
K>@'3;*0-'+.'H'>9<-'0+8*'0>*' 3'
-*>
"'')'93'H-*',+0 9 <'+C+@'3'-*>'
'H-*')*, ,9;9 <'3'-*C);.'C-+'
' -*')*,*989 <' ' ' 0'?1'
;93*'3) >' -*'.*+.'G

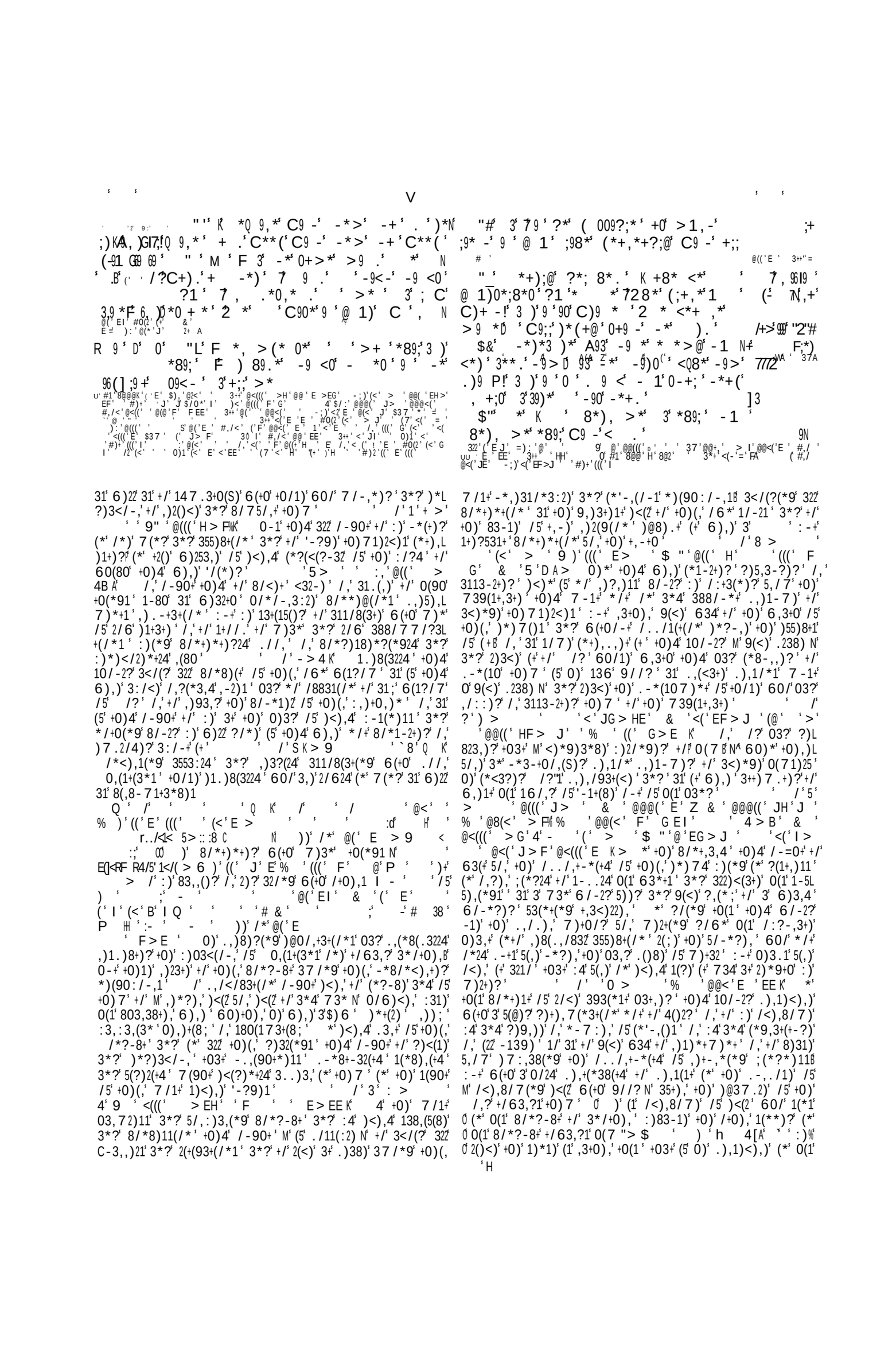
1-:18,(:)'B 4)+'0)':4'*/'7)3*1'3?7(+1'+0/1)'8/*1)C-)*8)1'
60(80'*-7:),1'60/'0'1.)3;')<(2'/5'603+'+0)4'-*?),%
0'1+3*?'*/+N'(*?(18,(7(*3+)24'803,9)'/*'322'60/'0/2?'
$0)'?/8+,(*)'/5'.),1/*32')2)8+(/*'+/')+),*32'2(5)'
7'(<'E'E'-'(('G>EK' 0)'3./1+2)'1))71'+/'03<)'
9(<)*'+0)'1)*1)%/5'+0)'1)<),32'.,/.0)8()1'+/'+0(1'+,3*123+(/*'.-+1'
?+0)'/.+3+(<)"Q/,',3+0),'+0)'(7.),3+(<)K'?5/,'603+'(1'
0'(*'+0)'):,)6'+0)'5-+-,)") 0(1'(1''3..,)L
0)*?'/5+)*'?/*)'<),4'9>() (*);@B:-+'0),)'+0)'8/*+)@+'
,)C-(,)1'(+B 31'1)<),32'<),:1'(*'+0)'137)'.31139)'3,)'(7L
.),3+(<)'% '@(@'EE>EGK
- ') 'QFK'P ' >#' '))'/*'(@' I $ '"<
;'$!'$ "'<(' '@('JJ' '(<'E I ! '
") ;'M' 3,?)*)?N' 'O \PHY P '))'/*'
<(' E>2)& " 'QGK'M')7/,1)N' '=)),)'
/*24' '>*'@@(@' '2 >=) &3 3N 2 '/*'H)
((' > ;'1) 2"GH'2 ' ' & 'C'F4>'
Q ' 'Q K'=@/2(/%-,3(,3<'('E '))'/*' 77 '
4 >Q ' 7# ;'8)7 '),)'/*24' ' >% '@(@
EJ'2 ' @/%-<')+7 '/
' > ' P 0)'3./1+2)'03?'10)6*'+03+'1,3)2'631'*/+'
))#' 0'831+' /55'N' 'F> K' 3*?'0)'*)@+')*C-(,)?'
60)+0),'+0)' *3+(/*' (*' 9)*),32' 03?'1/'1+-7:2)?' '/))#'
+/':)'@82-?)?'5,/7'322'5-,+0),'103,)'(*'+0)':2)11(*91'8/<)L
3+)?'+/'+0)(,'53+0),1' /,'60)+0),' /?'03?'*/'5-,+0),'
)*?'(*'+03+'741+),(/-1'?(1.)*13+(/*'+03*'7),)24'+0)(,'532'
3*?',-(*')'6/-2?':4'*/'7)3*1'3?7(+)(+0),'/5'+0)1)'
1-../1(+(/*1' 5/,'(+'38+-3224' 3..)3,)?'+03+'+0)' /,?'(*L
+)*?)?'M'+0,/-90'+0)'-*:)2()5'N' /5'+0)'$)61'+/'8/77-L
(83+)'0(1'132<3+(/'+/'+0)')*+(2)1' 0)'.),1)8-+(/*'/5'
+0)' 0,(1+(3*1'(*' $-?)3' ?,/<)' +0)7' (*+/' /+0),' ,)9(/*1'
3*?'+0)'$)61'(*')<),4'.238)',)')8+(*9'+0)'9/1.)2')@8(+)?'
+0)'..)380),1'7/,)'1.))?(24'3*?'/.)*24'+/'3??,)11'+0)'
)*+(2)1':4'60(80'7)3*1'<),4'23,9)'7-2+(+-?)1'03?':))*
+-,*)?'5,/7'(?/21'+/'1),<)'+0)'2(<(*9' /?'" '1'
<(((' 'H' @(' I > ' @(((' HE > HG' ' - '(' I K')+'
)<)*' +0(1'631'1-(+)?'+/')@8(+)'+0)'$)61'+/'3'0/24')32/-14'
3*?'3*')7-23+(/*'6(0'+0)')*+(2)'6/,10(..),1'(*'S)32'5/,'
+0)'1),<(8)'/5'B & !'&'3*?')3,*)1+*)11'(*' 1)) ;(*9'+0)'
:2)11(*91'/5'+0)')11(30"1' ;(*9?/7'+0/-90'(+/'9)*)L
,3224'03?'+0)'8/*+,3,4')55)8+'+0,/-90'+0)(,'.,(?)'3*?'.,)L
'-?(8)1' '/'8> I '@' G>E K' 5'+0)*'
0'+0)(,'532'N'03?':))*' /<),%,-2)?'5/,'M'+0)')*,(80(*9'/5'
M'+0)'6/,2?'N'(*'9)*),32'6(0'+0)':2)11(*91'/5'+0)'9/1.)2'
(5'+0)'?(7(*-+(/*'/5'+0)'*-7:),1'/5'+03+'2/*9%53</-,)?'
.)/.2)':4'+0)')@82-1(/*'/5'1/'23,9)'3'.3,+'/5'+0)7'5,/7

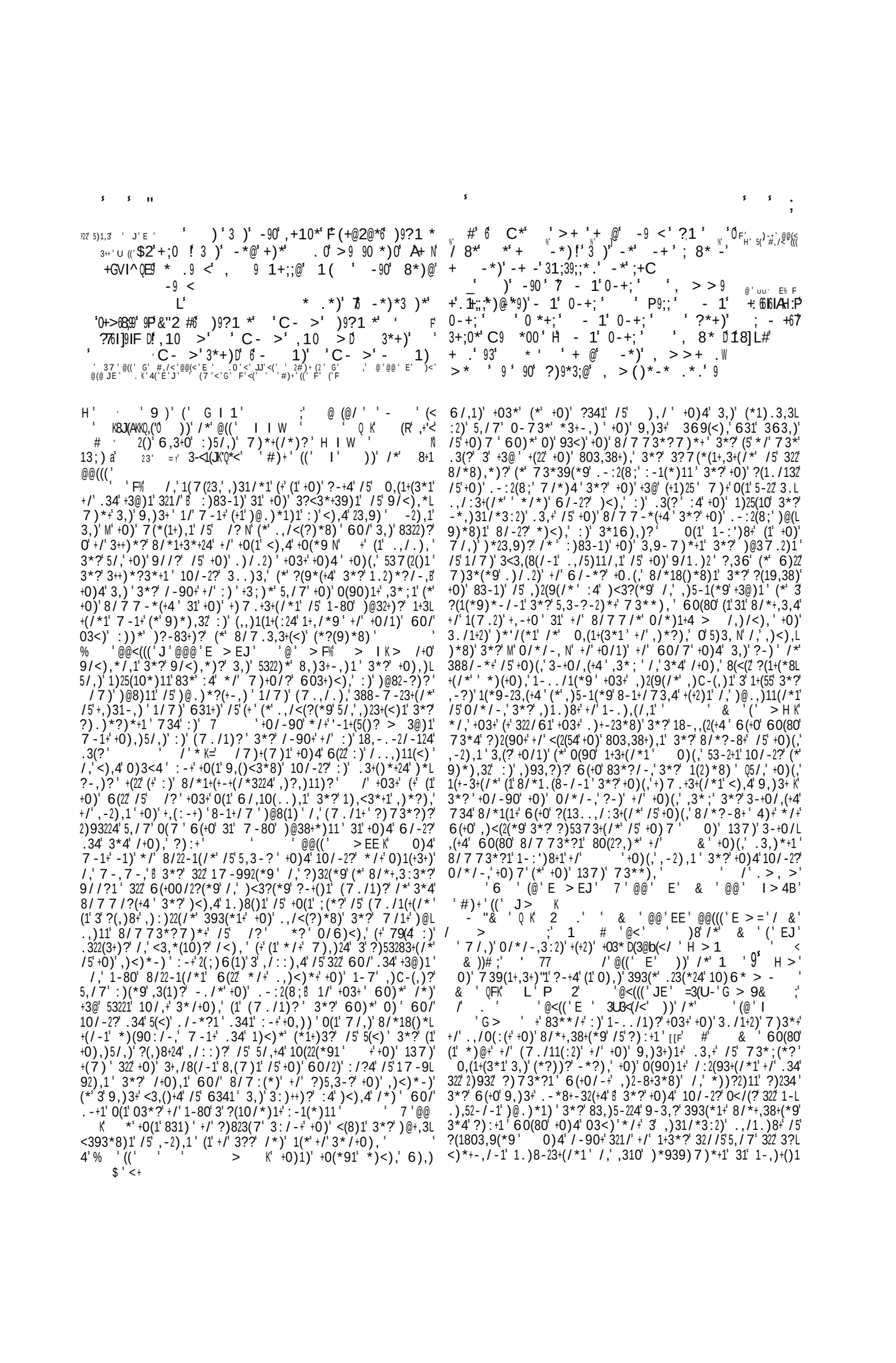
+0)'<(1(:2)'80-,80'3*?'+0)'1-:1)C-)*+'-?97)*+1'(*52(8+)?'
/*'+0)7'631'+0)'/8831(/*'/5'8/77-*(83+(*9'1-80',(80'
:2)11(*91'+/'(77)*1)'*-7:),1'/5'+0)':)*(90+)?')*+(2)1'
0/6'7-80'73,)'6/-2?'+0)(,'8/*<),1(/*'60)*'+0)'60/2)'
3+(/'10/-2?'(*'/*)'5-2'':/?4'38;*/62)?9)'+0)(,'2/*9'
?)1.(1)?')11(30X /,'+0(1'+0)4'03<)')<),'1(*8)=:))*'
.,)1),<)?'3?(1+(*8+.)/.2)'327/1+':4'3'8/*+(*-)?'7(,382)'
& '@@(((' I '@@@' BK'3*?'31'+0)(,'8/*L
<),1(/*'6(225-25(21/<),4'73*4'3*8()*+.,/.0)8()1'8/*8),*L
(*9'+0)(,',)1+/,3+(/*'3*?'6(2'.,/:3:24':)'55)8+)?':4'+0)'
5-25(27)*+'/5'73*4'/+0),'.,/.0)8()1'1/'(+'6(2'?/-:+2)11'
)@8))?(*924'8/*?-8)'+/'+0)'8/*<),1(/*'/5'+0)',)73(*(*9'
0)3+0)*'*3+(/*1' /'5'9 ' '@@<('H >'
HE'Z & '(<'EI>J '@@@' > '* '@(' '@(((' '
> I '@(<' '@@@((' JI>H ' E'@@@(<'EJ>J '@@@<('
E > 'J '@@@<((' E >EG'@@@(@'EJ>EI'$ '(((' H'
)'(((' I>E '1 '(@' J> ' <'F>V'<((' G>E '
S '(((' H> FA'S '<(((' >EJ'@' > '@(' > HK'
#3-2'3??,)11(*9'0(71)25'+/'+0)')*+(2)'8/*<),+1'Q+0/-90'
0)'631'363,)'+03+'73*4':/+0'/5'+0)'$)6(10' 0,(1+(3*1'3*?'
+0)'-*8/*<),+)?'$)61'6/-2?',)3?'0(1'3,9-7)*+1K'1./;)'(*'
+0)'803,38+),'/5'M'+0)'3./1+2)'/5'+0)')*+(2)1N':4'+0)'
1.)8(32'?)1(9*3+(/*'/5' 0,(1+'3*?'3(7)?'+/'8/77)*?'3*?'
739*(54'+03+'/55(8)'31'0/*/-,3:2)'+/'0(71)25'3*?'7/1+'
(7./,+3*+'5/,'+0)'9//?'/5'73*;(*?' +'+0)'137)'+(7)'
:4'3'7/1+'-?(8(/-1'3*?'?)2(83+)'+-,*')'.,)1)*+)?'0(1'
S)32'5/,'+0)'8/*<),1(/*'/5'+0)')*+(2)1'31'3*(73+)?':4'+0)'
?)1(,)'/5'1+(,,(*9'-.'0(1':,)+0,)*'+0)'$)61'60/7'0)',)L
93,?)?'31'M'0(1'/6*'52)10N'+/')7-23+)'+0)(,'53(+0'3*?'31L
.(,)'+/'+0)(,'.,(<(2)9)1'+03+'+0-1'0)'7(90+':)'(*1+,-7)*+32'
(*'13<(*9'1/7)'/5'+0)7'321/'+2(/-90'0)';*)6'+03+'+0)'
1)*+)*8)'?)*/-*8)?'-./*'+0)'*3+(/*'631'(,,)<),1(:2)'
Q 3,9'/'0>7K>0)'*92(10'6/,?'O.,/<);)N':)(*9'
/6'5(@)?'('8/77/*'-1)'+/'+0)'(?)3'5')@8(+(*9'(*?(9*3L
+(/*'(1'<),4'3.+'+/'.),.2)@'+0)',)3?),"1'7(*?'3*?'+/'.,)L
<)*+'0(1'82)3,24'1))(*9'+03+'+0)'3./1+2)'1./;'/5')@8(+(*9'
+0)7'+/'0/24'3*?'*/+'+/'-*0/24'.311(/*1'+0)'23++),'(*L
?))?'631'9)*),3224'+0)')<)*+'/5'0(1'8/*?-8+':-+'8/*+,3,4'
+/'0(1'(*+)*+(/*1' '$ "'@'EJ>E K> 1'+0),)5/,)'
+0)',(90+)/-1',)')8+(/*'/5'+0)'-*:)2()<(*9$)61'03?'.,/<)?'
+0)'/8831(/*'/51/'23,9)'3'7-2+(+-?)'/5'+0)')*+(2)1'+0,/-90L
/-+'+0)'6/,2?':)(*9',)8/*8(2)?'+/' /?'3*?'632;(*9'3+'
.)38)'6(+0'0(7'603+'6/-2?'+0)(,'5-+-,)',)8).+(/*'(*+/'
+0)'80-,80'(*+,/?-8)':-+'1-80'3'803*9)'31'6/-2?',)1)7L
:2)'3'9)*),32',)1-,,)8+(/*'/5'+0)'?)3?'(*'1(*'+/'3'2(5)'/5'
0',(90+)/-1*)11" (*')<),4'.3,+'/5'+0)'6/,2?'"'3*?'3'../,L
+(/*3:2)'(*8,)31)'/5'1.(,(+-32'2(5)'+/'322'60/':)5/,)'03?':)L
2()<)?'D 0(1')<)*+'6(22'388/7.2(10'1/=73*4'.,/.0)8()1'
(*'1/'/.)*'3*?'1(9*32'3'73**),'+03+'(*5(?)2(+4'(*')<),4'

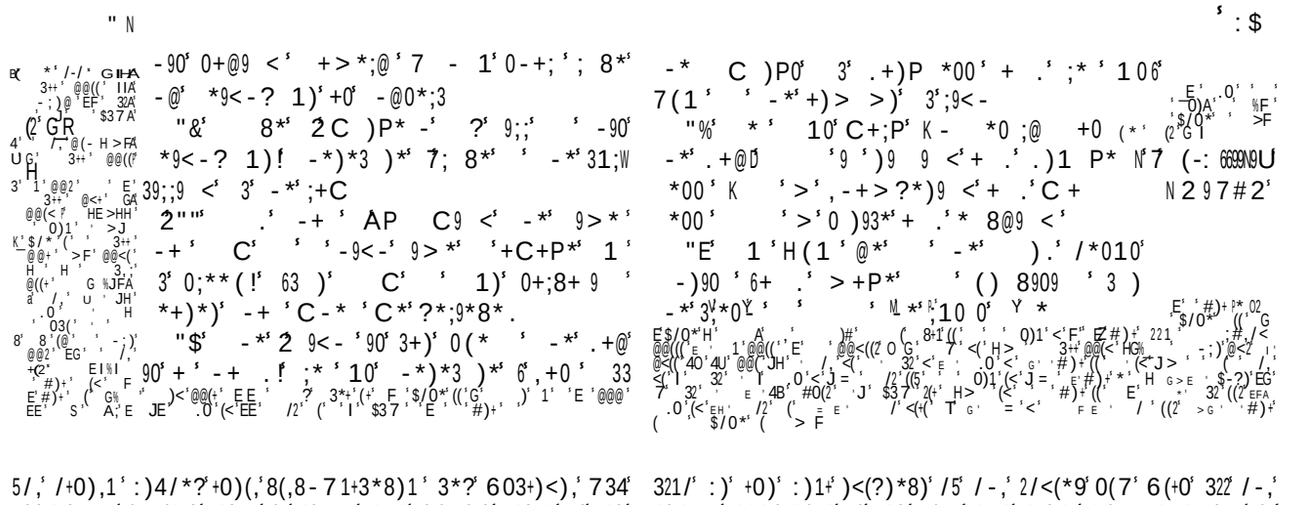


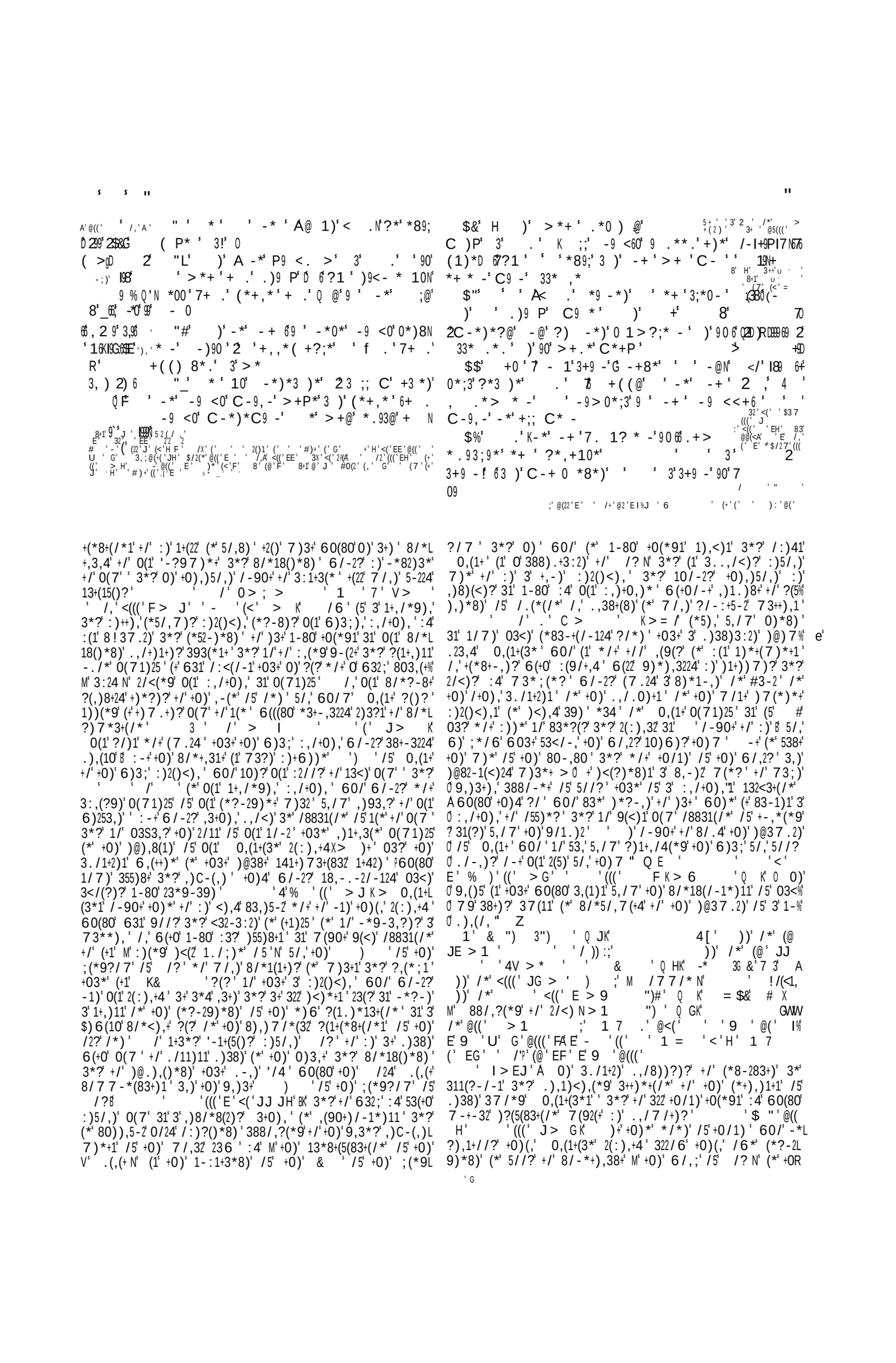


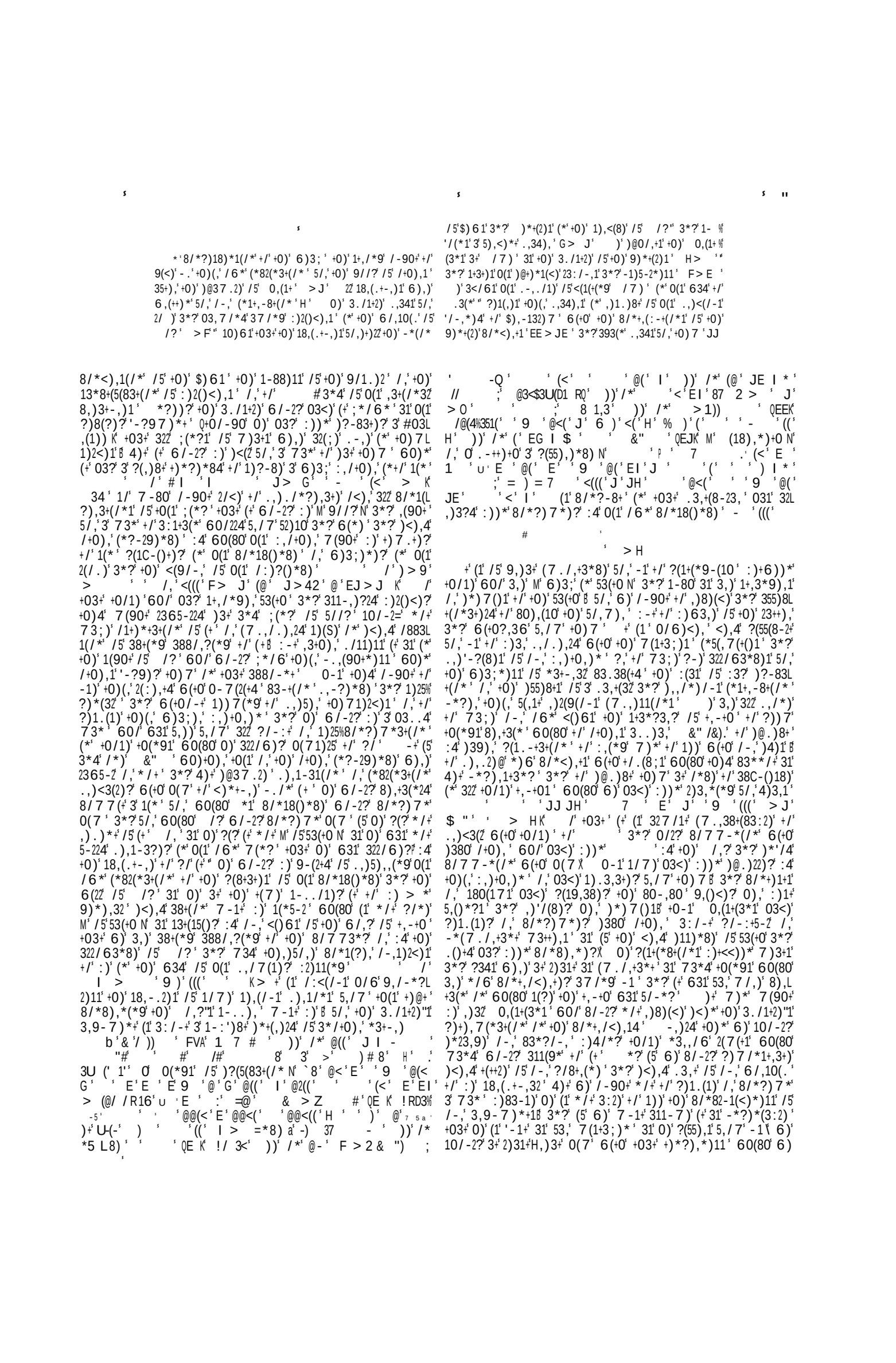


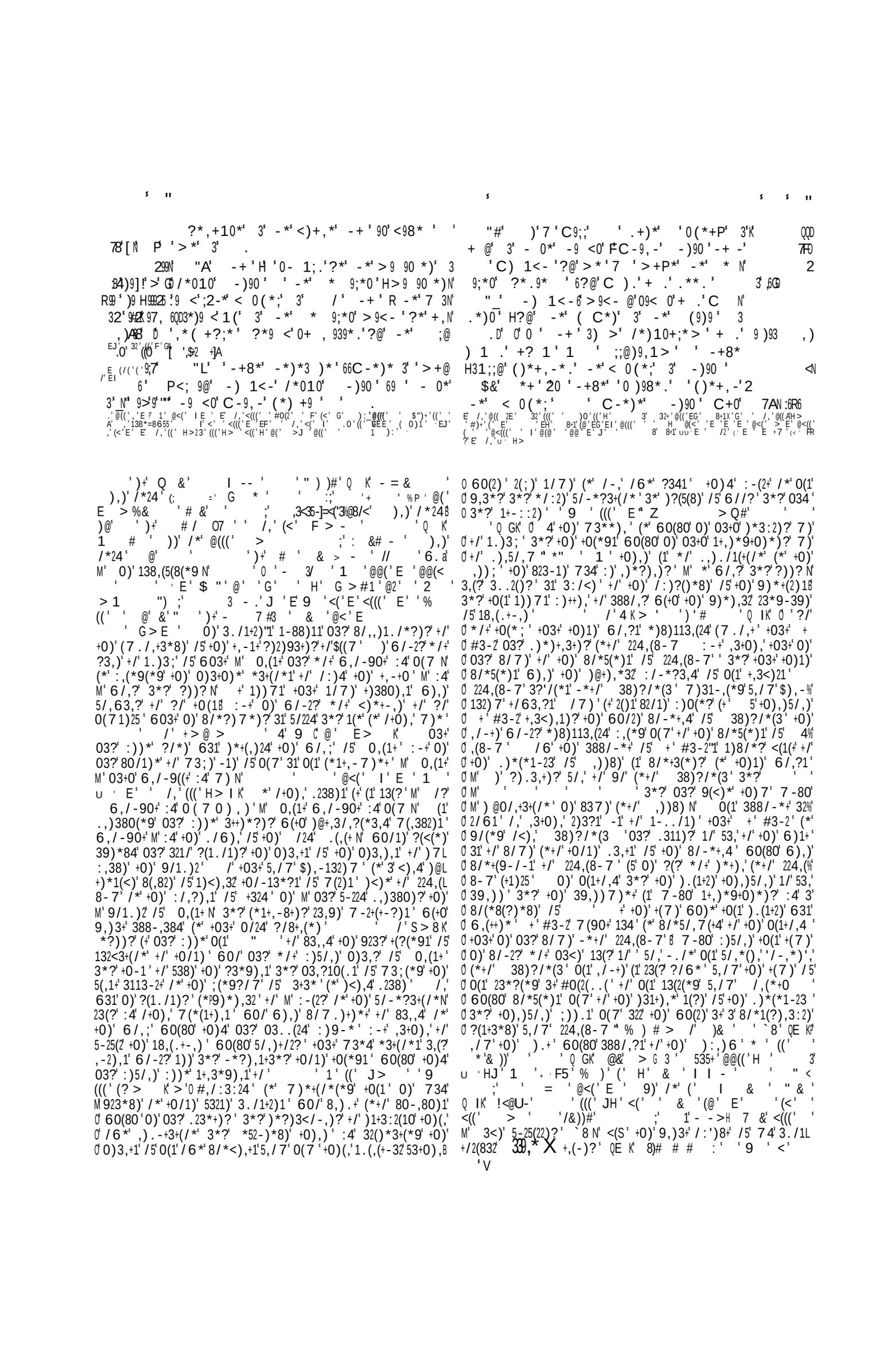


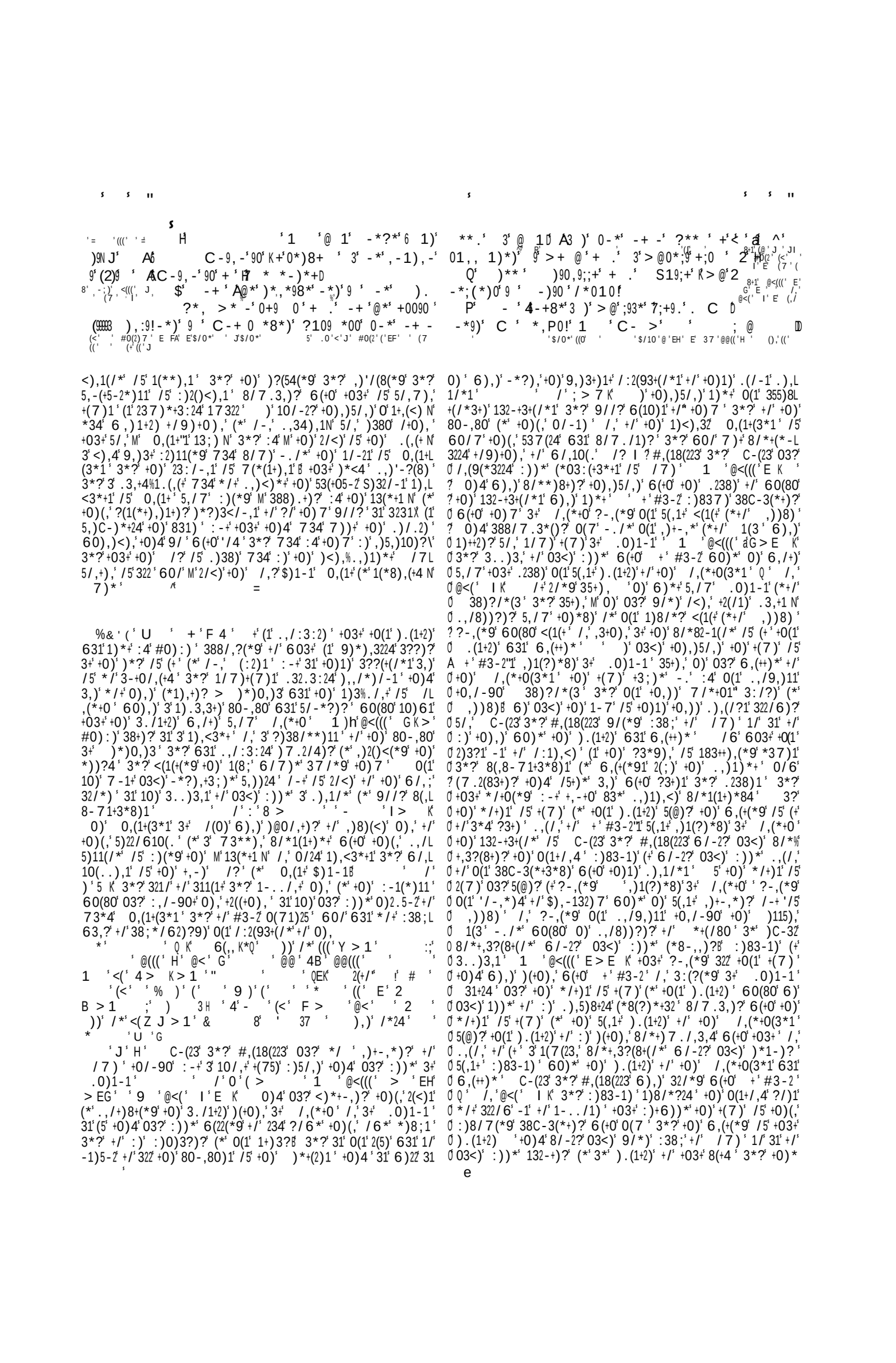


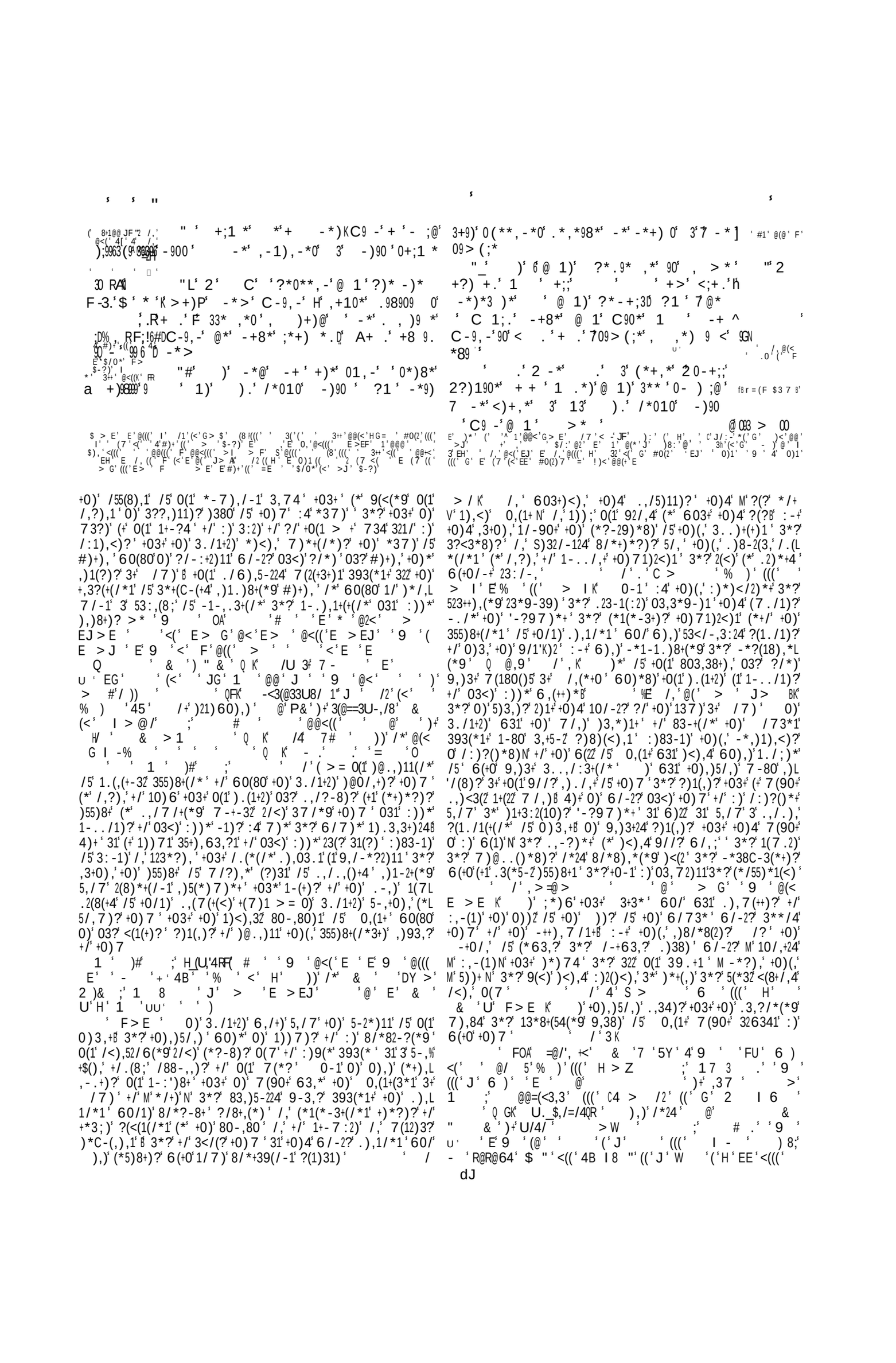


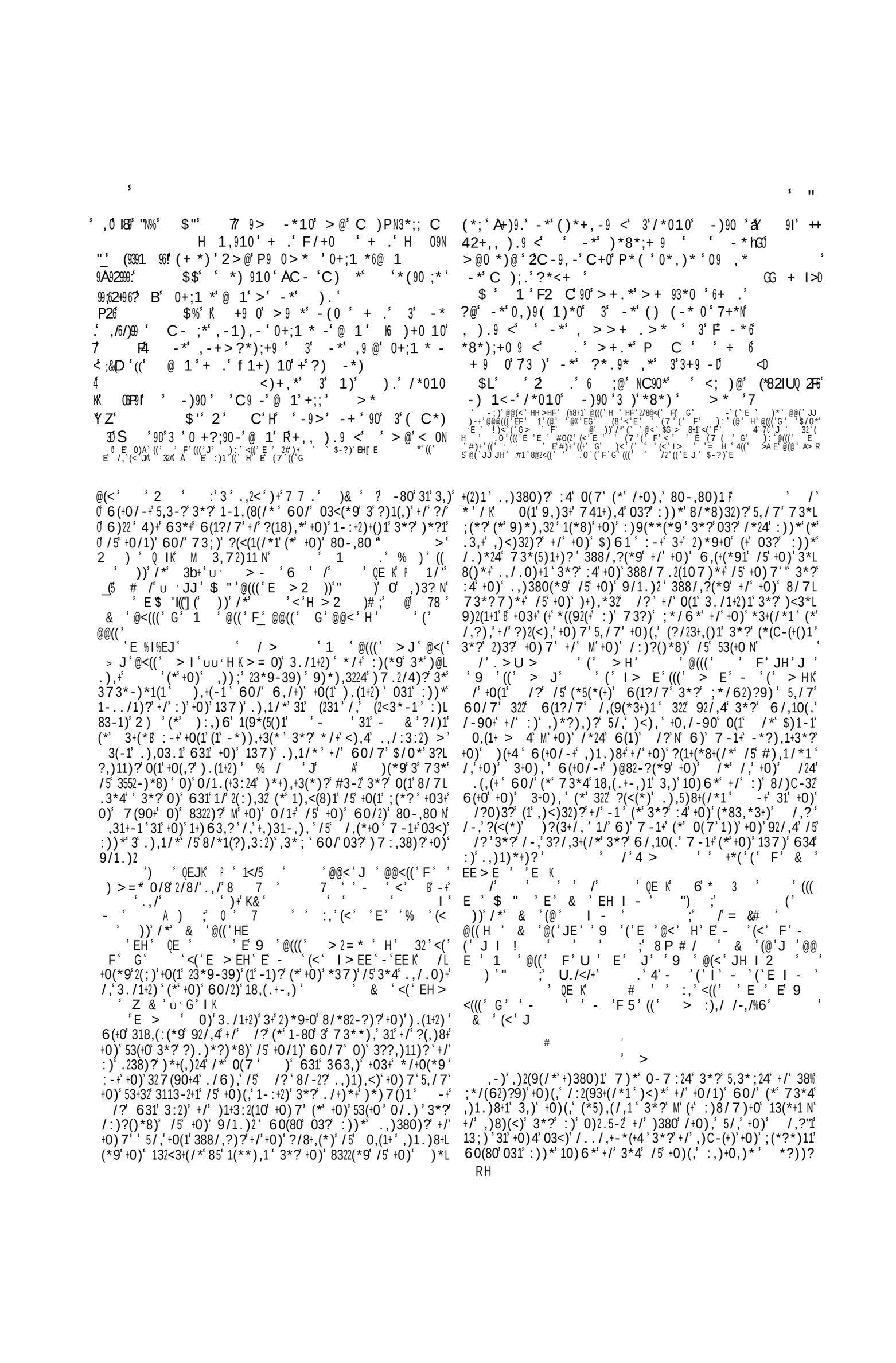








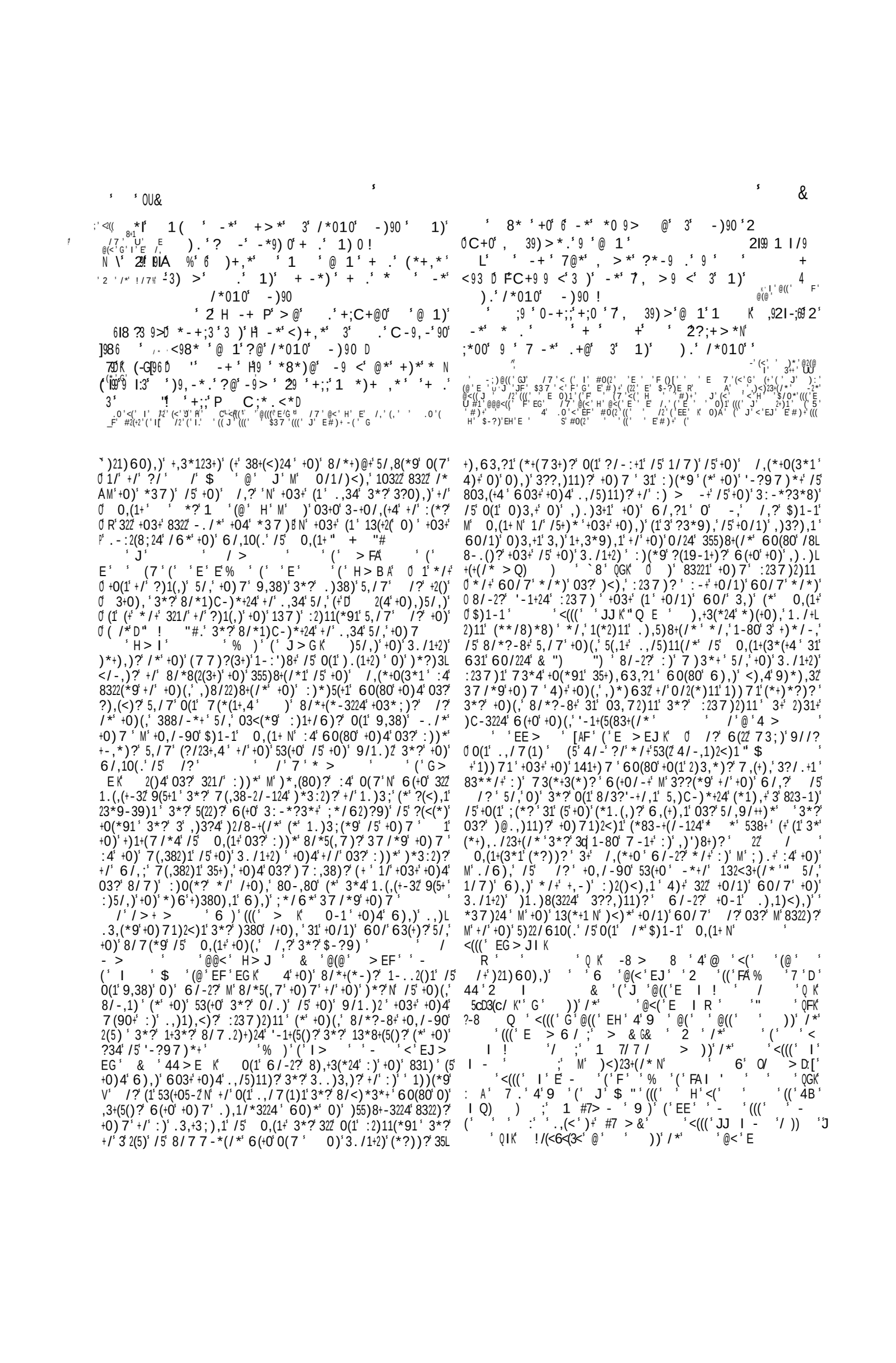


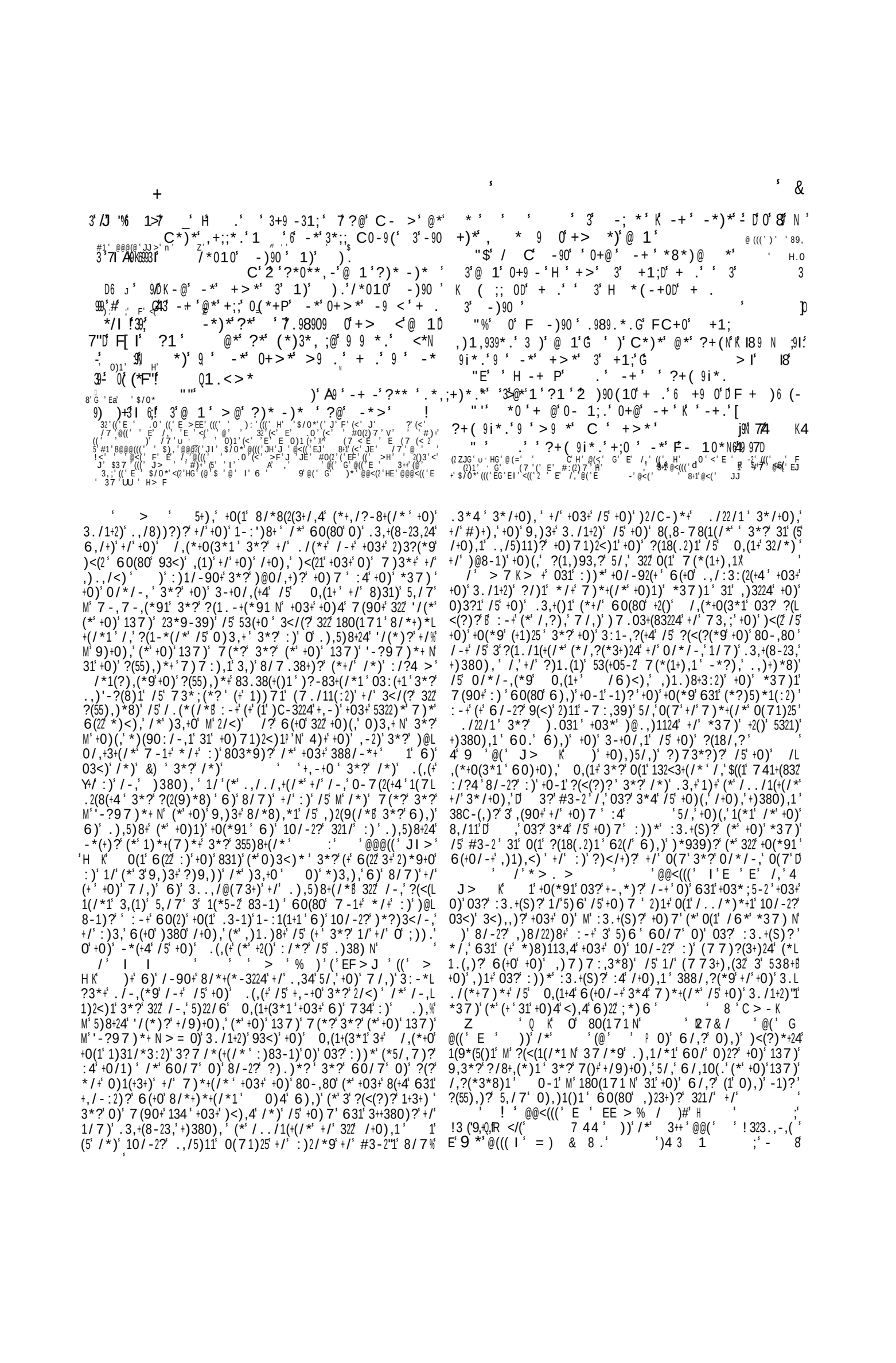


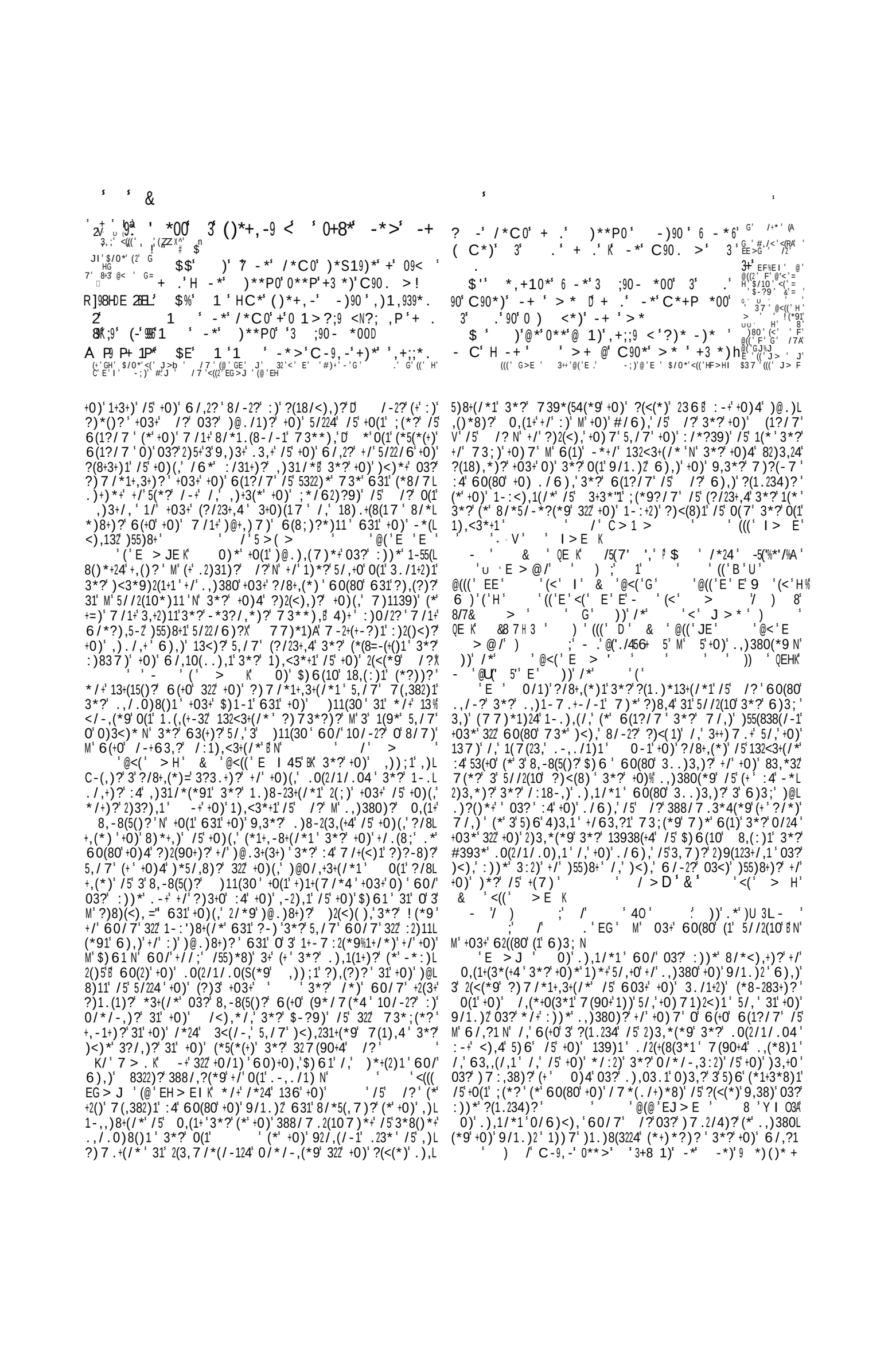
G&# % +(' HG" I '% 2J' "H %' J

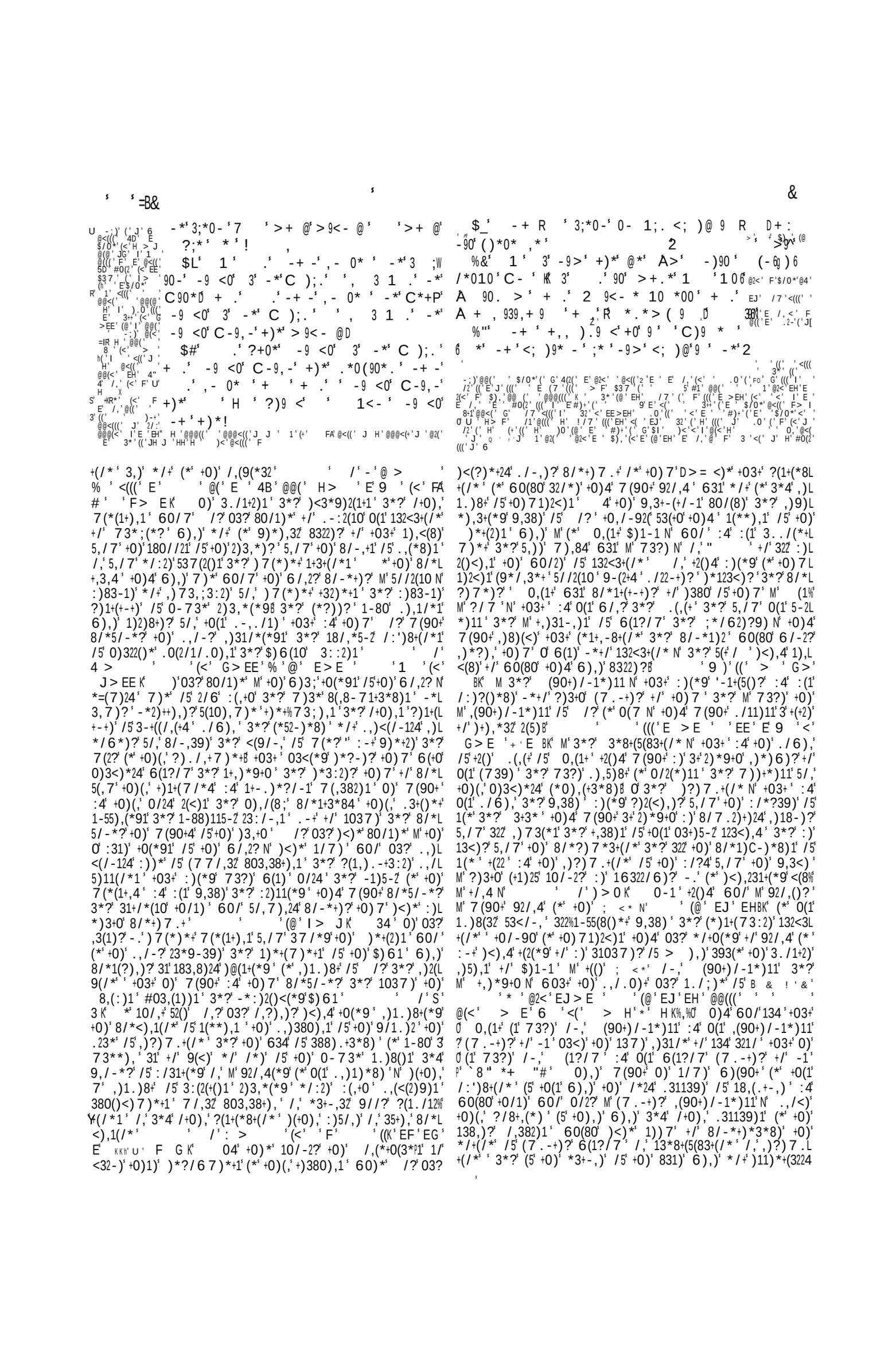
'

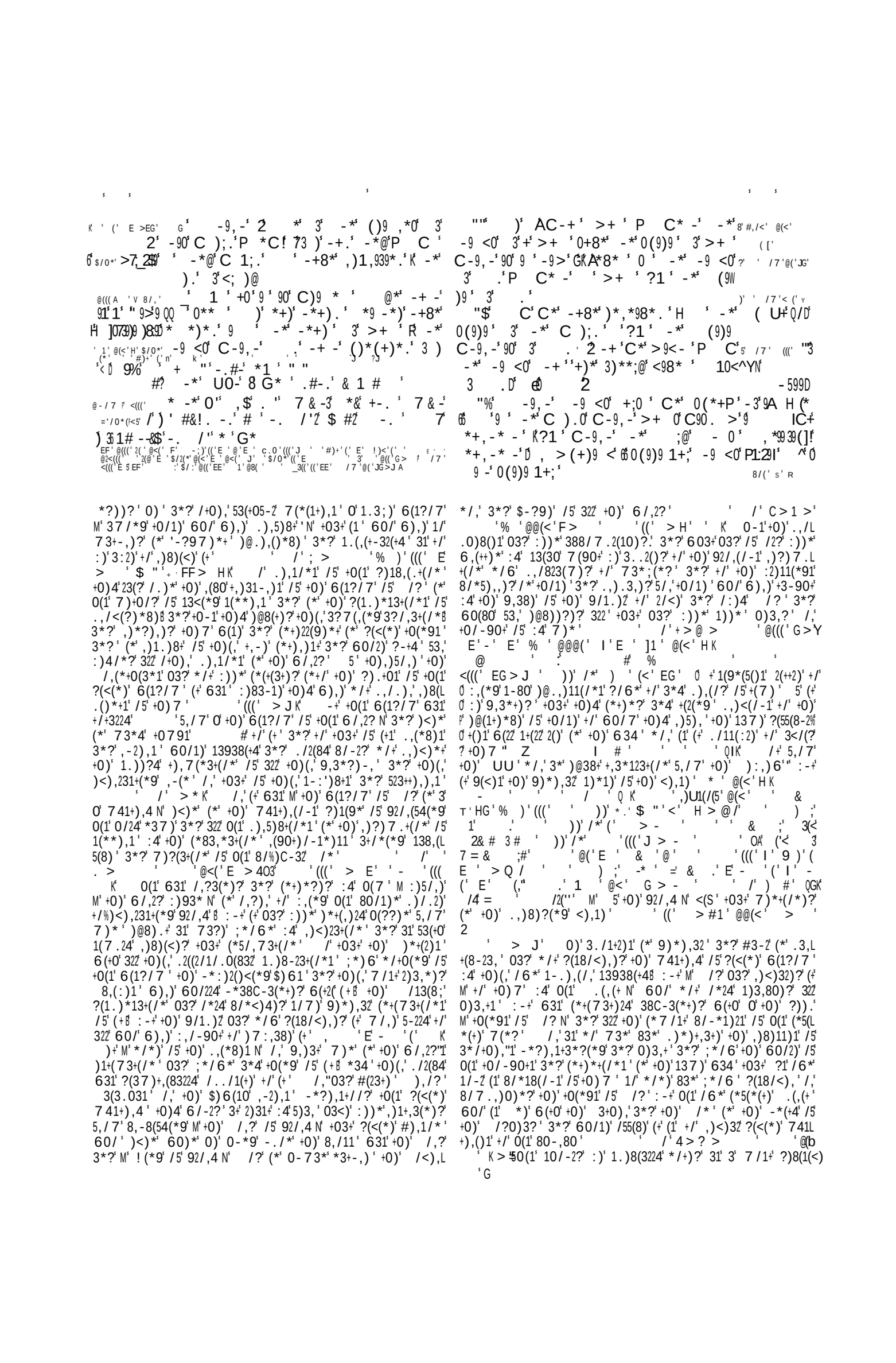
& ' *3,,3+(<)' /5' +0)' 3./1+2)"1' 1-88)115-2' .,)380(*9' 3+' /,(*+0 '031' :))*' 8/*1(?),)?' '1 '@<(((' j F ' -+' <),4' 1//*' 35+),' 0)' 2)5+' +0)' 80-,80' 6(((80' 0)' 5/-*?)?' +0),) ' /+0),' +)380),1' 837)' +0(+0), ' 60/' 73?)' 9,)3+' .,)+)*1(/*1'+/')2/C-)*8) ' 6(1?/7 ' 3*?' ;*/62)?9)' /5' 0,(1+(3*' 2(:),+4 ' 3*?' +0-1' -*?), 7(*)?' 0(1' (*52-)*8) ' 3*?' +0)' 8,)?(+' /5' 0(1' 7(*(1+,4 ' 4' +0)1)' 7)3*1' +0)' /,(*+0(3*1' 6),)' ?(<(?)?' (*+/' .3,+()1')*939)?' (*')39),' ?(1.-+)1' 3*?' 1)?-8)?'(*+/' <3,(/-1' (,,)9-23,(+()1' (*' .,38+(8) ' 3*?'),,/,1' (*' ?/8+,(*) > 0' +' 3..)3,1' +03+' +0(1' 2)++),' +/' +0)' /,(*+0(3*1' 631' 6,(++)*' 0' :4' +' #3-2' (*' 3*16),' +/' /*)' 60(80' 0)' 03?',)8)(<)?' 5,/7' +0) 7 ' Q<((' ' K' 3*?' +03+' +0)' 1)<)*+0' 3*?' 1/7)' /5' +0)' 5/ % 0 2/6(*9' 803.+),1' 3,)' +3;)*' -.' (*' ,)1/2<(*9' 8),+3(*' ?/-:+1' 3*?',)9-23+(*9' 8),+3(*' ./(*+1' 5/,?),' 8/*8),*(*9' 60(80' 0+0)' /,(*+0(3*1' 03?' '8/*1-2+)?' 0(7 ' ' 0/-90' '+0)4' 03?' 6,(++)*' +/' +' #3-2' ,)C-)1+(*9' 0(1' 3*16),' 3*?' ?(,)/% 0+(/*1' (*' +0)1)' ./(*+1' +0)4' 03?' */+' 13(?'/*)' 1423:2)' 3:/-+' +0)')*/,7(+()1' 3*?' ?(1/,?),1' 60(80' 03?' 8,).+' (*' 37/*9' 0+0)7 ' 3*?' (*' +0)' :237)' /5' 60(80' +0)4' 322' 103,)?' :-+' 0(1' (*5/,73+(/*' 8/*8),*(*9' +0)1)' (,,)9-23,(+()1' 03?' 8/7)' 05/-*?' +/' 0(7' 5,/7' /+0),' C-3,+),1 ' :4' 7/,)' .,(<3+)' (*+)22(9)*8) " %) #' 0)').(1+2)' 631' +0),)5/,)' 6,(++)*' */+' /*24' 31' 3*' 3*16),' +/' +0)')*C-(,()1' /5' +0)' /,(*+0(3*1' :4' 2)++),' :-+' (*' /,?),' +/' /../1)' 3*?' (5' (+' 8/-2?':)'+),7(*3+)' +0)' <3,(/-1' 8/,,-.+(/*1' (*' ?/8+,(*)' 3*?' .,38+(8) ' 60(80' ..)<3(2)?' +/%1-:<),+' +0)' (*52-)*8)' /5' +0)' 5321)' +)380),1' 3*?' +/',)L)1+3:2(10' +0)' 3./1+2)"1' /6*' 3-+0/,(+4' (*' +03+' 80-,80' 4' 9)*),32' +,-+01' 0)' 6(+0' 9,)3+' 3??,)11' 3*?' .,-?)*8) ' 73?)' (634' 5/,' 3' 7/,)' ?(,)8+' 3*?' .3,+(8-23,' /..1(+(/*' +/' +0)' 1)<),32' 9,/11' (,,)9-23,(+()1' 3*?' ?3*9),/-1' 7(1+3;)1' (*+/' 60(80' +0)4' 03?' :))*' 1)?-8)?' ')' 1+3+)?' +0)' +,-+0' 3*?' 6(22' /5' /?' (*' <3,(/-1' .3,+(8-23,1' 6(+0' 9,)3+')*),94' /5' 3,9-7)*+' 3*?' 3*(73+(/*' /5' 1+42) ' 0)' 13+(1538+/,(24' ,)1/2<)?' +0)' 1)<),32' C-)1+(/*1' 60(80' 03?' :))*' .,/.1)?' +/' 0(7' ' 0) ' 6(+0' 9,)3+' +)*?),*)11' 3*?' 6(1?/7 ' (*+),7(@)?')@0/,+3+(/*1' 3*?' ?(,)8+(/*1' 6(+0' 0(1' /+0),' 1-:')8+1' 3*?' 0)' 8/*82-?)?' 6(+0' 355)8L +(/*3+)' 3*?' .3+0)+(8;' .,34),1' 5/,' +0)7 > = 0/-90' +0(1').(1+2)' (1' */+' 1/' 141+)73+(8;' 31' +03+' +/' +0)' /73*1' (+' (1',).2)+)' 6(+0' (7./,+3*+' (*1+,-8+(/*' 3*?' 8/*+3(*1' +0)' 5-22)1+' 3*?' 7/1+' (*+),)1+(*9' ?)823,3+(/*' 3*?' ?)7/*1+,3+(/*' /5' +0)' ,)1-,L ,)8+(/*' /5' :)2()<),1' (*' 8/*1)C-)*8)' /5' +0)' ,)1-,,)8+(/*' /5' +0)(,' /,?' 60(80' (1' 3*4' 60),)' +/' :)' 5/-*?' '@<K>%' +' (1' 7/1+')<(?)*+' +03+' +0)').(1+2)' 631' 6,(++)*' :4' +0)' 3./1+2)' 60)*' ,)1(?(*9' 3+' /,' *)3,' .0)1-1' 3*?' 1/7)' +(7)' :)L 5/,)' 0)' 2)5+' +03+' 8(+4' '@<(((' E K')' 1+341' +0),)' 3' 4)3,' 3*?' 3' 0325' Q K' '3+' .0)1-1' +0,))' 4)3,1' 1 ' ' UU' J K' 3*?' 3+' +0)' 82/1)' /5' +0)1)' +2(,))' 4)3,1' 0)' 6,(+)1' +0(1').(1+2) ' ' 5' 6(+0' ,' #)3,1/*' 4/-' :)9(*' +0)7' /*24' 3+' +0)' +6)25+0' /5' 23-?(-1' +0)4' 6(22')*?' (*' +0)' +0(,?' /5'),/' ' ' F" ! "#' -+' +0(1' 2)3,*)?' 6,(+),' 031' 322/6)?' */+(7)' 5/,' +0)' 3./1+2)"1' </439)' 3*?'' -,*)4'+/' $),-132)7' 3*?' 0(1' .,/9,)11' +0,/-90' +0)' 80-,80)1' /5' 4,(3' 323+(3' 3*?' +0),' .3,+1' /5' 1(3' (*/,' 3*?' +0)' 137)' /<),1(90+' 031' :))*' 5322)*' (*+/' :4' 7/1+' /5' +0/1)' 60/7' +0)' 3-+0/,' 031' 03?' +0)' /../,+-*(+4' /5' 8/*1-2+(*9' 60/' ?3+)' +0)').(1+2)' 1/')3,24 > 0' ' H' #3-2' 3+' /,(*+0' 0 7))+1' 6(+0' C-(23' 3*?' #,(18(223' ' ' ' #3-2' ?).3,+1' 5,/7' /,(*+0' 3*?' .311)+0' +/' .0)1-1' +0)*8)' 0)' 1)+1' 0 /-+' +/63,?1' $),-132)7 ' 0)' 23*?1' 3+' 3)13,)3' 9/)1' ?/6*' +/' *+(/80' 3*?' 8/7)1' (*+/' +0)' ,)9(/*1' /5' 323+(3' 3*?' A#0,49(3' 8/*5(,7(*9' +0)' ?(18(.2)1' (*' 322' +0)1)' .238)1 > = ' F' #3-2' ,)+-,*1' +/' .0)1-1' ' ' ' :/-+' +0(1' 0' +(7)' 3' 180(17' 3,(1)+0' (*' +0)' 80-,80' 3+' /,(*+0' 60(80' 83-1)+0' #3-2' Q*/6' (*' /,' 3:/-+' .0)1-1' K' +/' 6,(+)' 0(1' (,1+' 0' .(1+2)' +/' +0)' /,(*+0(3*1" * 7' ' ' e& '@7/ 'Q ") ' FIH' 0)' .),1/*' 60/' 8/7.(2)?' +0(1' (*?)@' 1)) 71' +/' .238)' +0)' 6,(+(*9' 5' +0)').(1+2)' 1-:1)C-)*+' +/' +0)' +-7-2+' 3+' .0)1-1' 60(80' (+' 8),+3(*24' 631' */+' '@<(' > I' E' /,' (' G > K' +' 8/-2?' */+' 0/6<),' :)' 6,(++)*' 2/*9':)5/,)' +0)' 3./1+2)' 2)5+' .0)1-1' 3*?' .,/:3:24' +0)' (*?)@' 3:/<)' C-/+)?' ?/)1' */+' 322/6' +/' 7-80' +(7)' 5/,' +0)' 3./1+2)"1' .,/9,)11' 5,/7' $),-132)7' +/' .0)1-1' '1 '@<(((' G > EJ' @(@' G > E K' 0(1' 8/7.-+3+(/*' +0),)5/,)' +0)' 3-+0/,' 031' 5(@)?' /*' 31' 7/,)' 13+(1538+/,4' +03*' 3*4' /+0),' 60(80' 0)' 031' 1))* > = 0)').(1+2)' 8/*+3(*1' */')@..)11' .,/.0)8()1' :-+' */+0(*9' 83*')@8))?' +0)' ?)8(?)?' 823(7' +/' ?(<(*)' (*1.(,3+(/*' 60(80' +0)' 6,(+),' 3?<3*8)1' '((' %,2J K')')(+0),' +0),)5/,)' 823(7)?' 603+' 0)' 631' */+')*+(+2)?' +/' ' /,' 0(1').(1+2)1' 3,)' */+' /*24' 9)*-(*)' 3*?' 3-+0)*+(8;' ' :-+' ?(<(*)24' (*1.(,)?' % / ' ' ') A

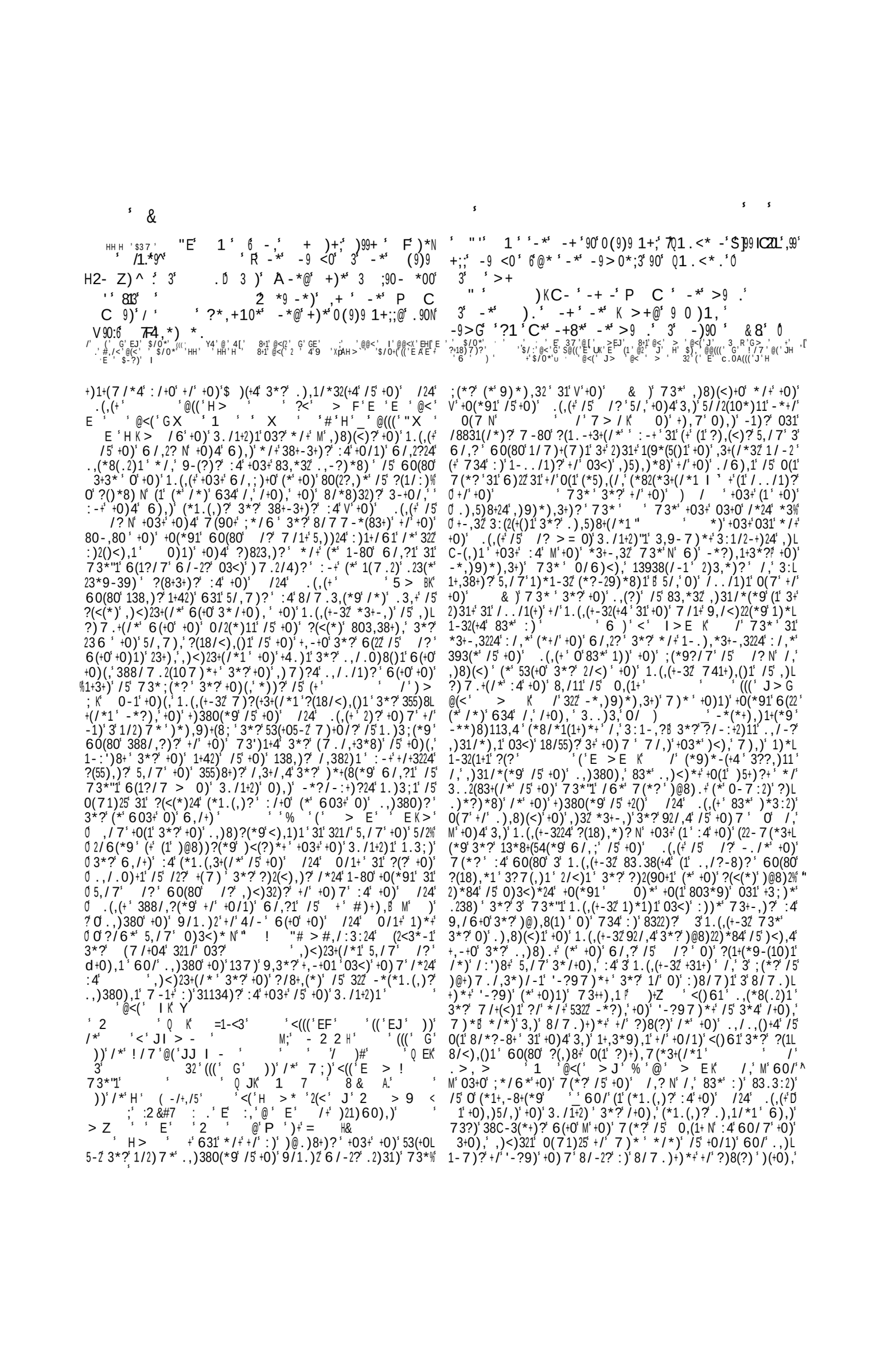


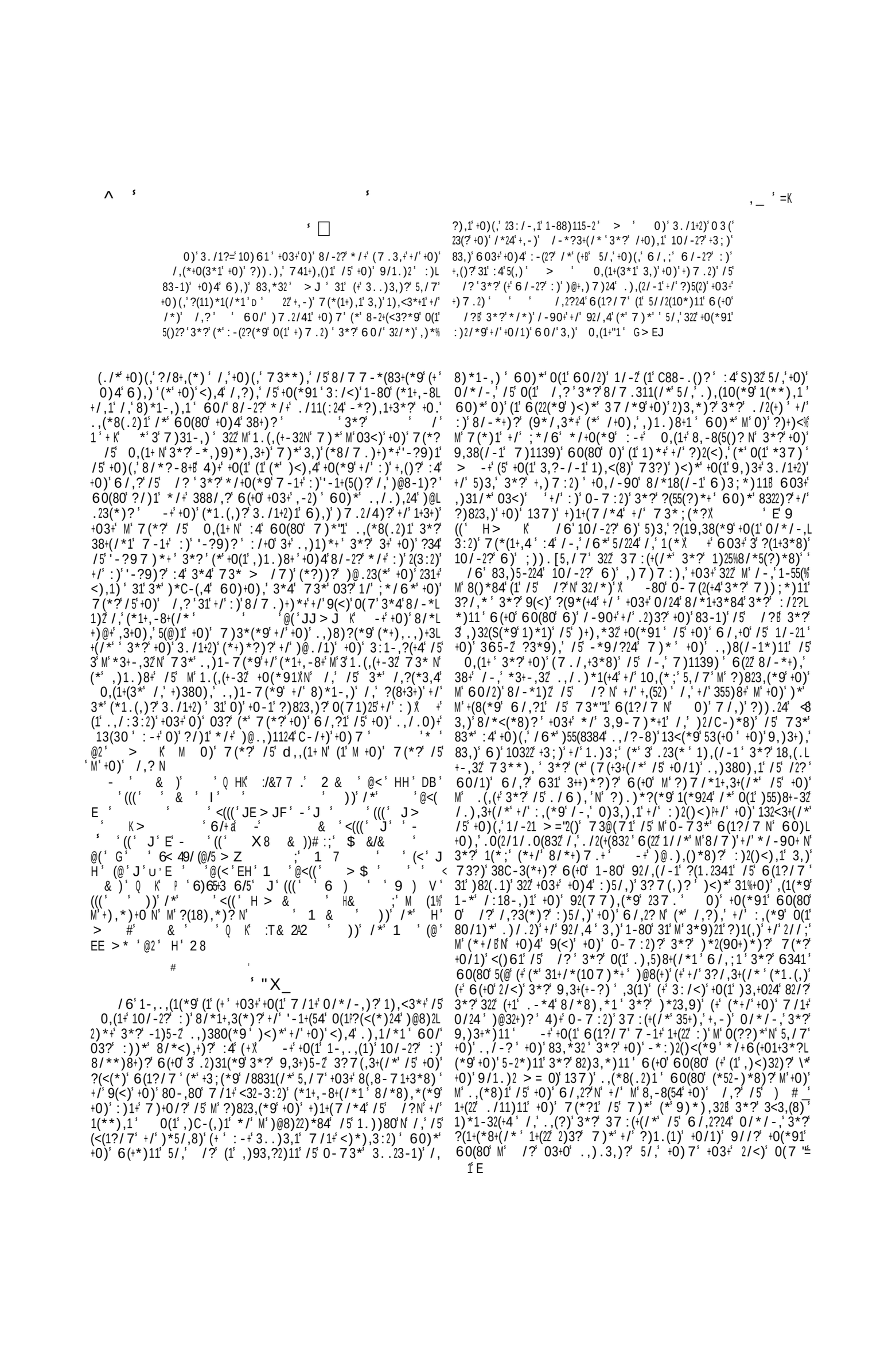


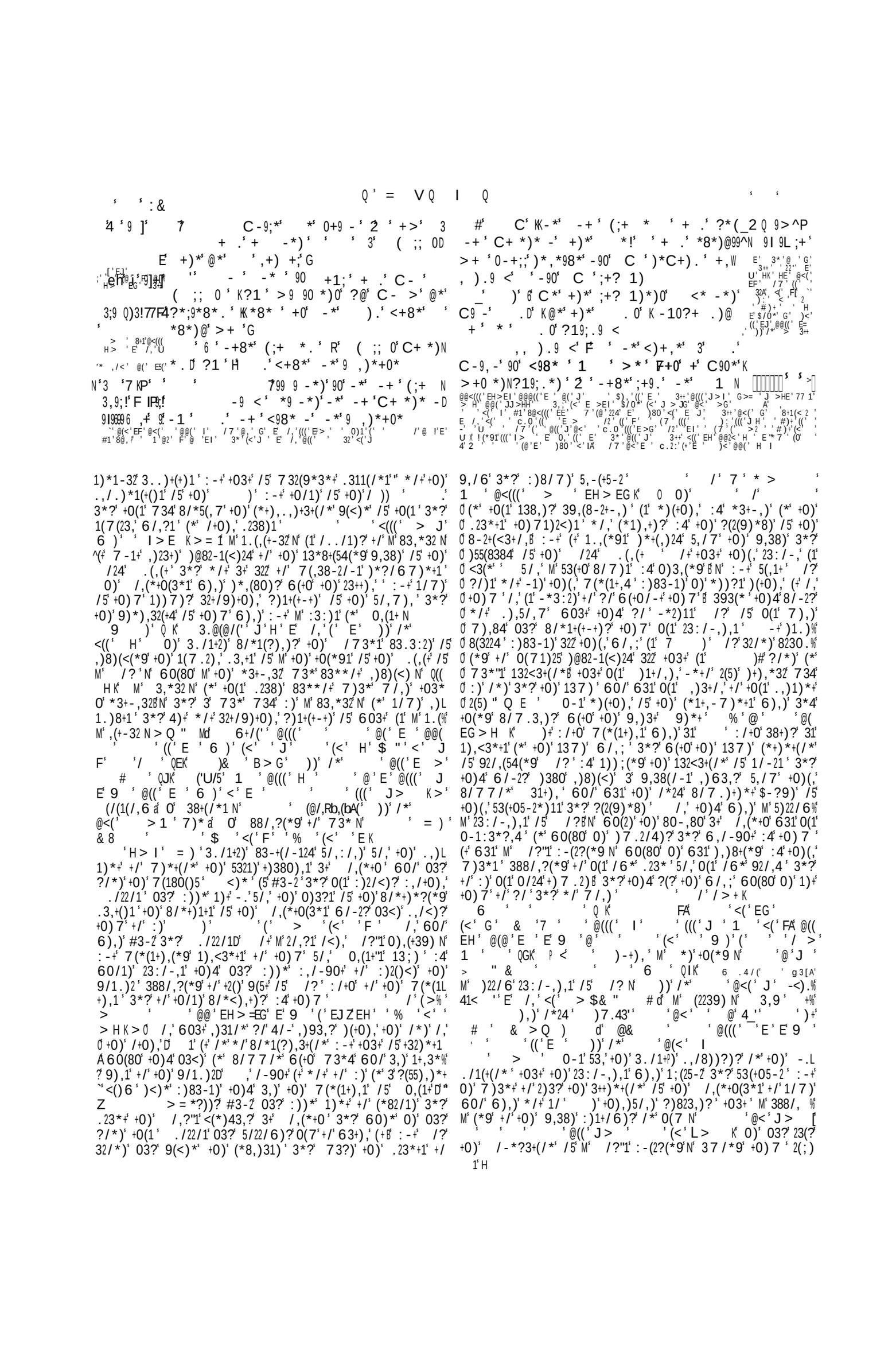


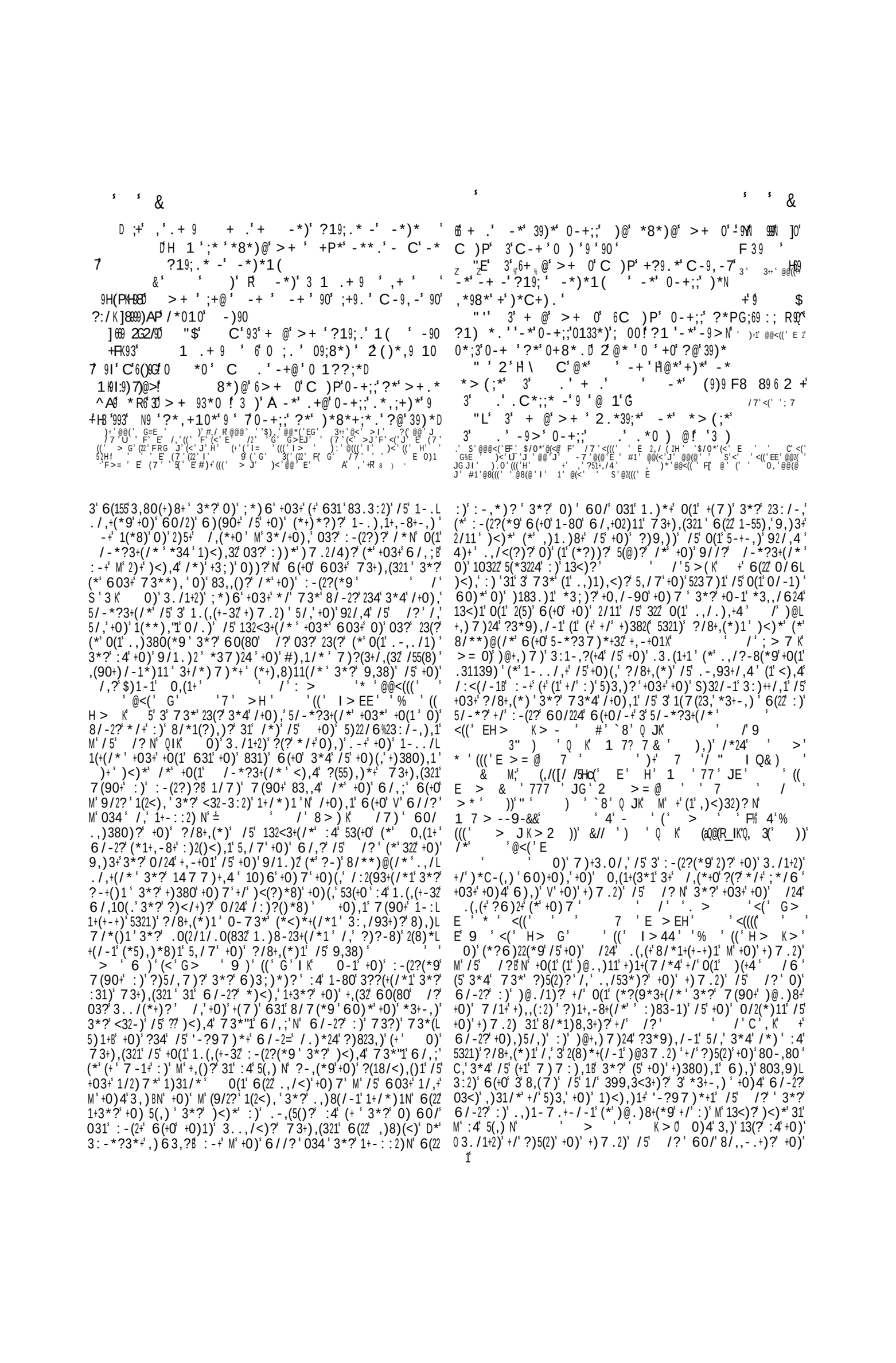


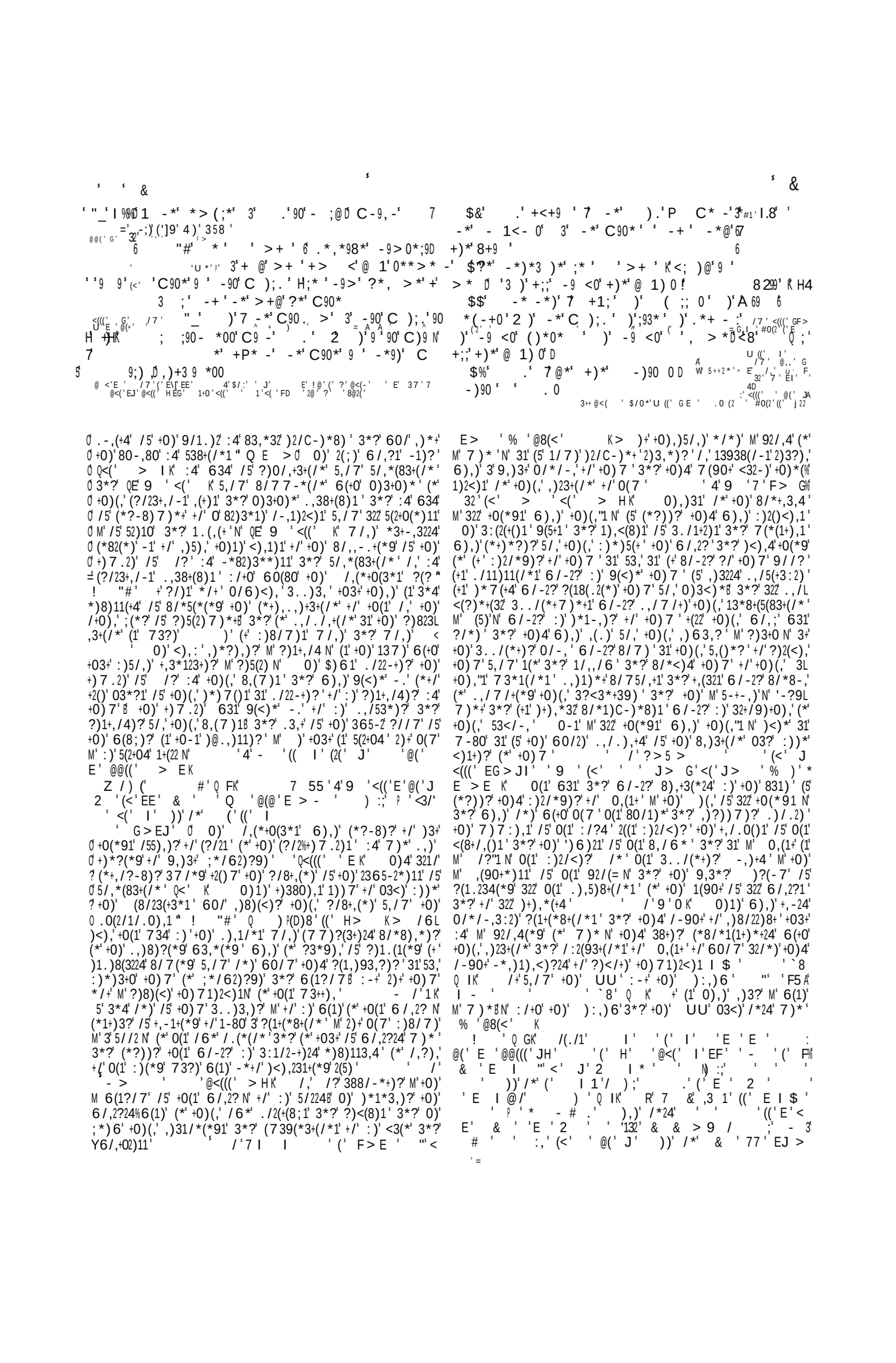






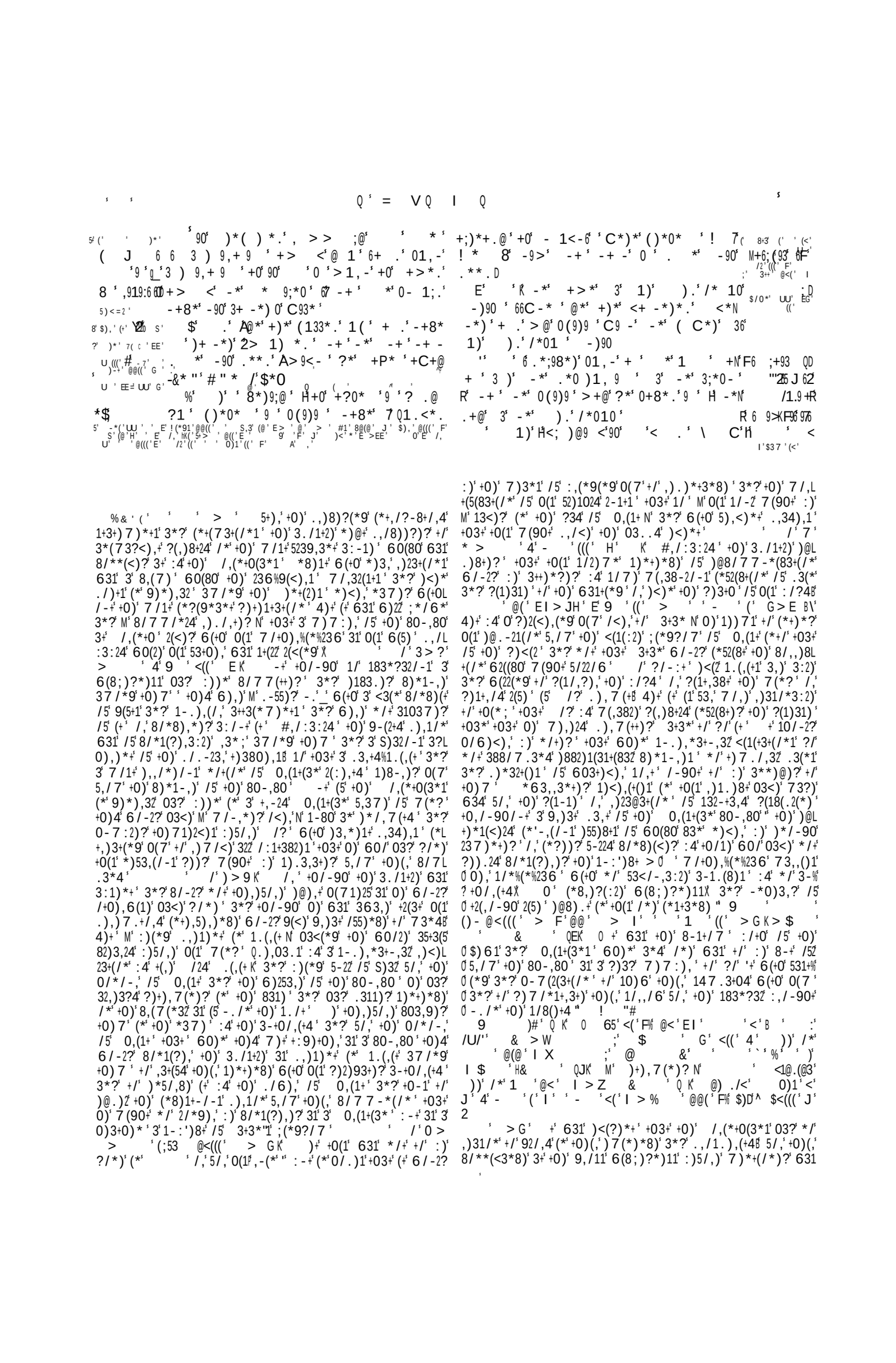


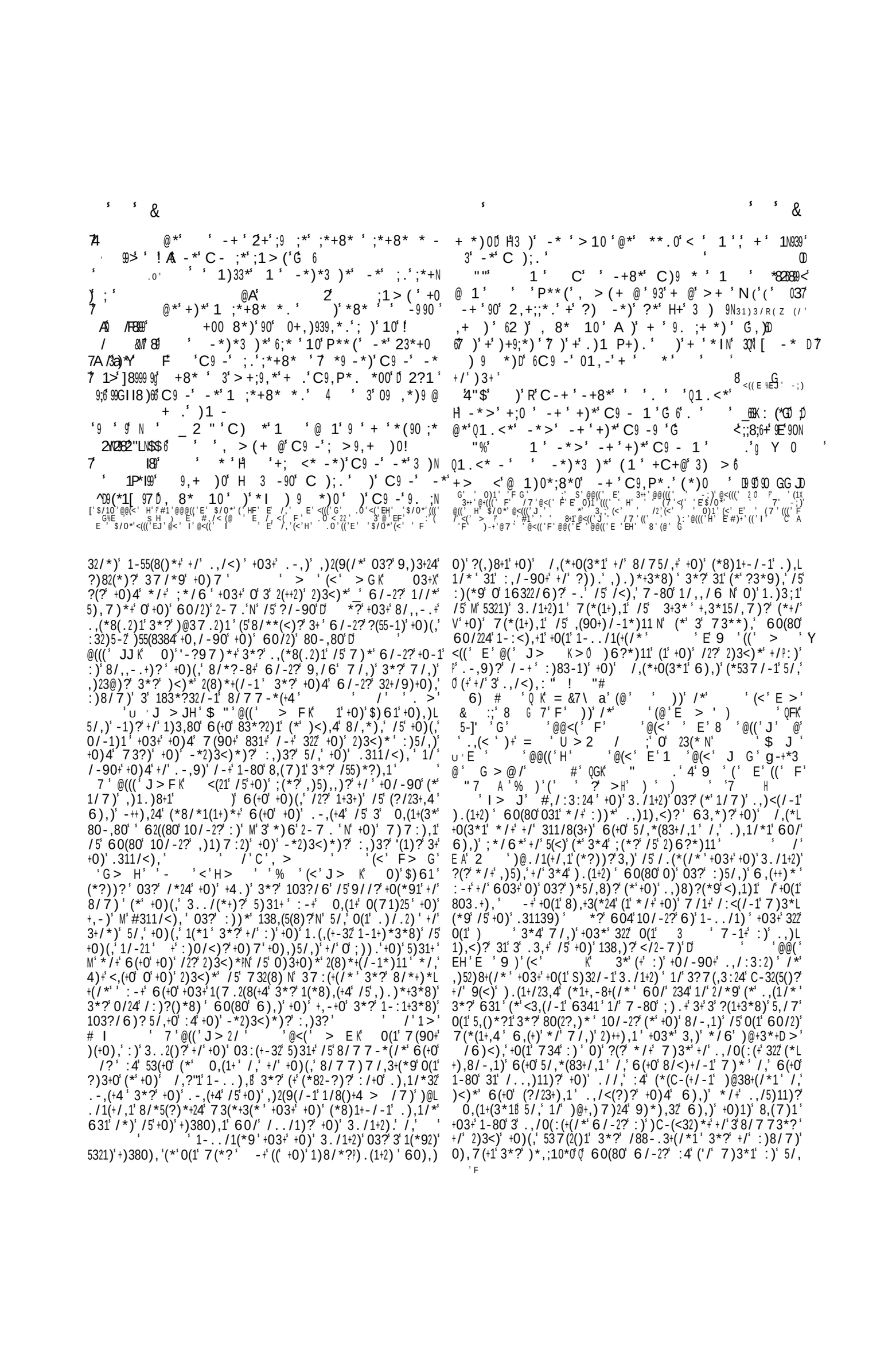


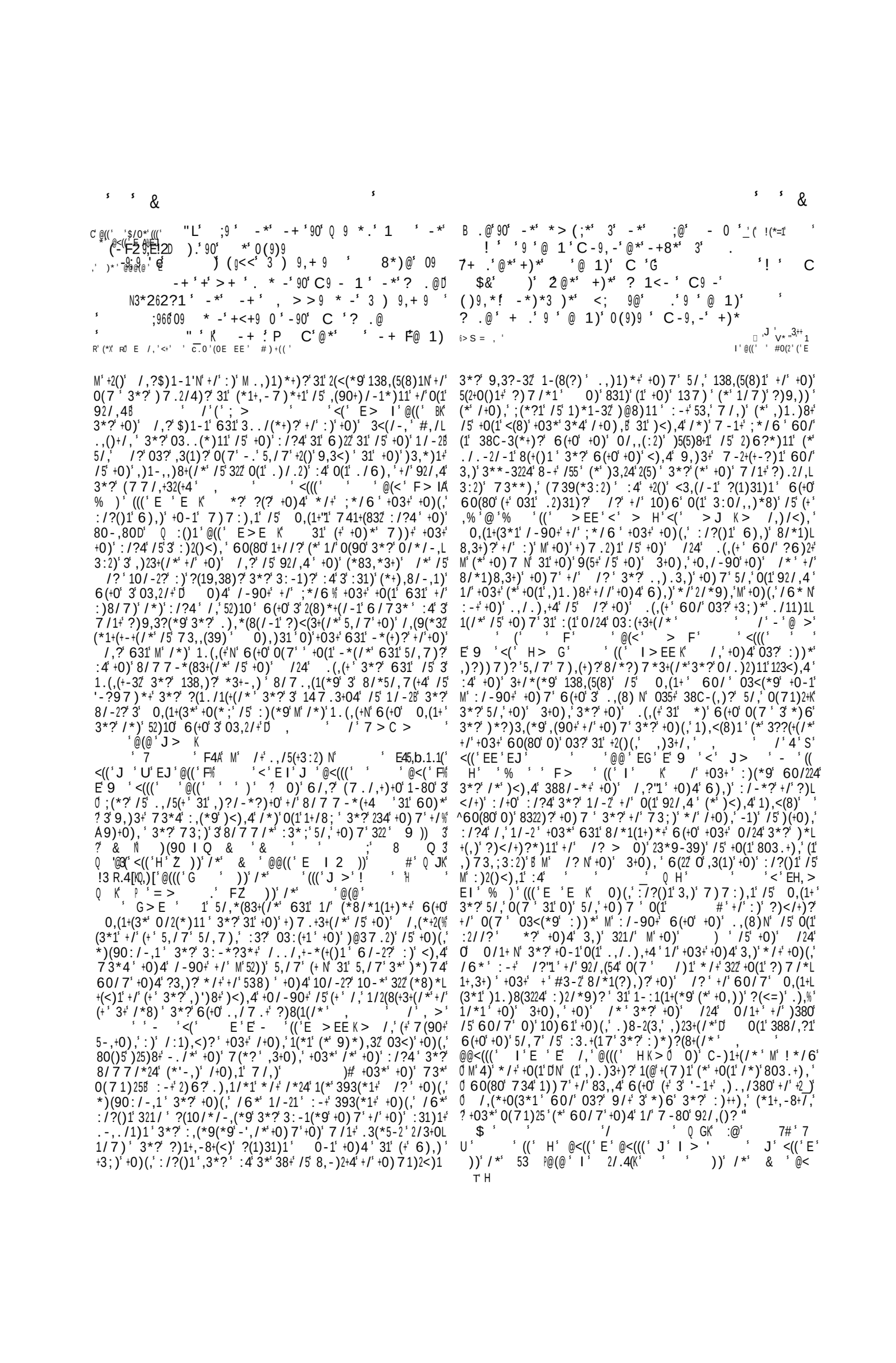


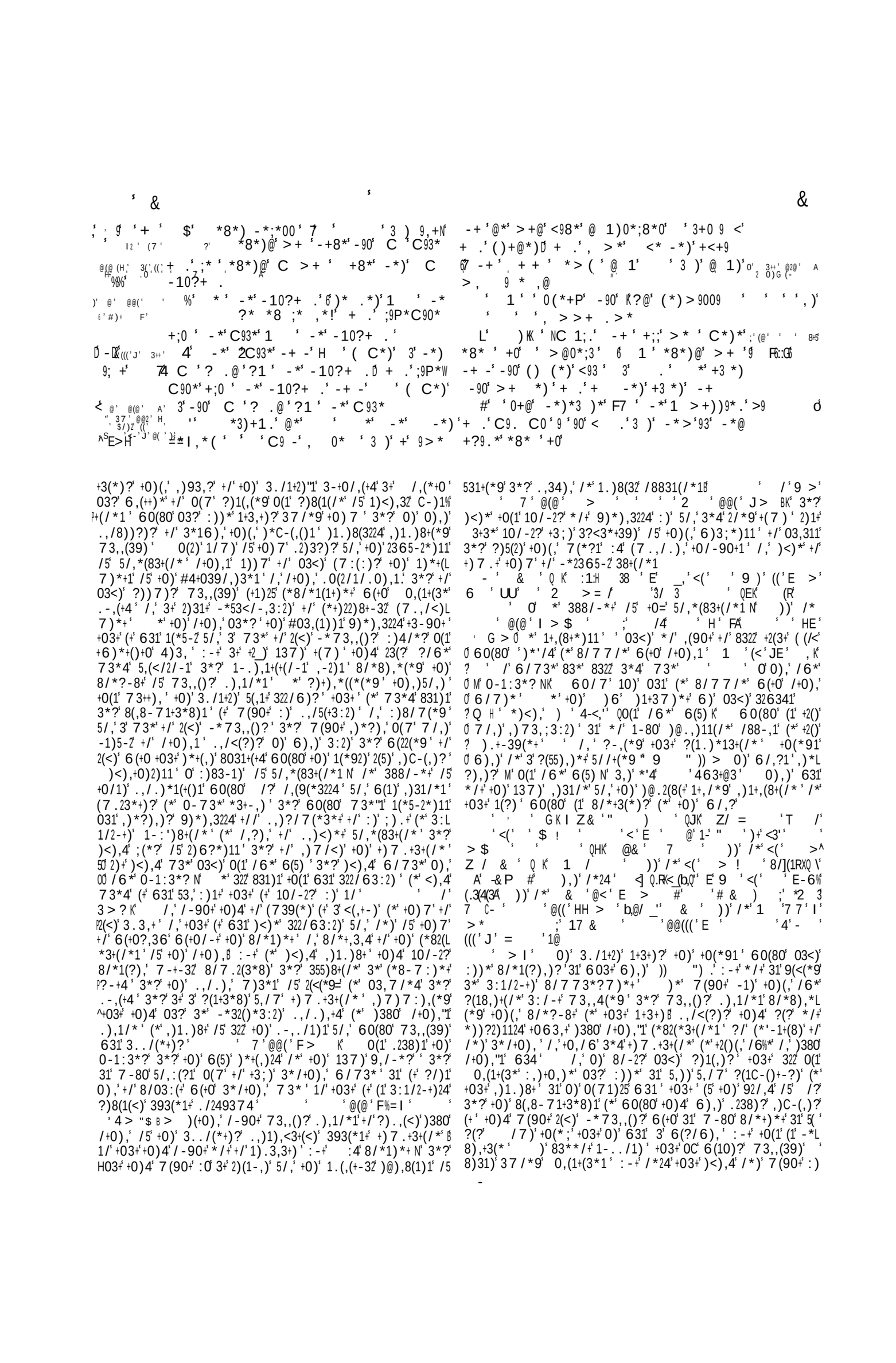
8(.2)1 3*? +0-1)1+)) 7(*9 +0) 7 31 1/ 7)+0(*9 7 /, +03*
1),<3*+1 /, 1+) 63,?1 /, 3: /<) 603+ 0) 03? 6,(++) * 388/,?L
(*9 +/ +0) 6 /,? /5 /? 3*? /* /+0), 388/-*+1 +03* :)L
83-1) /5 +0),(53(+05-2*)11   / * > C >
 @@(((G> E   @((J > G K Z *?))? : /+0 +0)4
3*? +0) +)380),1 Q60/ 7 +0)4 .238)? (* 8/ 7 .)+(+(/* 6(+0
)380 /+0), 3*? 3: /-+ 60/ 7 +0)4 6),) .-55)? - . K /-90+
+/)*C-(,) M 60/ 03? 73?) +0) 7 +/ ?(55), N 5,/ 7 +0),(,
(?/23+,/-1 *)(90: /-,1 /, +0),(5)22/ 6 0,(1+(3*1 31 +0(1
?(55),)*8) +0))55)8+ /5 +0),(1-.),(/, 7),(+ ?/8(2(+4 /,
9//?*)11 M 03+ 03? +0)4 60(80 +0)4 03? */+,)8)(<)?N
31 5,)) 9(5+1 /, 31 +32)*+1 8/ 7 7 (++)?+/ +0)(,1+) 63,?10(.
 04 +0)* ?(? +0)4 M 92/,4 N 3*? : /31+ 31 (5 +0)4 03?
:))* +0) (*?) .)*?)*+ 3-+0C,1 /5 +0/1))*?/6 7)*+1 :4
60(80 +0)4 6),) ?(1+(*9-(10)? 5,/ 7 /+0),1 3*? 31 (5 +0)4
6),) 3-+0/,(1)? +/) 7 .2/4 +0) 7 +/ +0),(/6* 92/,4 /,
3?<3*+39) 6(+0/-+ :)(*9 388/-*+3:2) +/ /? 5/, +0) 7
-,)24 1-80 1)25%)@32+3+(/* 7 -1+ :) 7 /1+ 3:1-,? 3: /7(*L
3:2) 3*? 138,(2)9(/-1 / 31 +32)*+1 8/ 7 7 (++)?+/ +0)(,1+) 63,?10(.
+03+ +0) 3. /1+2)(1 0),) 7 /,) (7 7)?(3+)24 1.)3;(*9 /5
3+-,32 3:(2(+()1 3? 1.(,(+-32 9(5+1 3*? */+ /5 ,)9)*),3+(*9
3*?)55(838(/-1 9,38))+ (5 6) 322 3,) :4 *3+-,))*+(,)24
?). ,3<)? (5 6) 7 -1+ :) : /,* 393(* 3*? *)6 8,)3+)? (5
(+ M (1 /? +03+ 6/,;)+0 (* -1 +/ 6(22 3*? +/ ?/ /5 0(1
V 9//? .2)31-,) N 3*? (5 V :4 9,38) 6) 3,) 13<)? +0,/-90
M 53(+0 3*? +03+ */+ /5 /-,1)2<)1 (+ (1 +0) 9(5+ /5 /? N
+0) 3. /1+2)"1 ,)31/*(*9 (1 3+ 2)31+ 31 8/*82-1(<) 393(*1+
322 ;(*?1 3*? ?)9,))1 /5 1)25%.,)5),)*8) /* 388/-*+ /5 /-,
,)2(9(/-1 3++3(*7)*+1 3*? 322 92/,4(*9 (* /-,1)2<)1 3*?
/+0), 7)* 31 393(*1+ +03+ 60(80 0) 631 ?(,)8+24 / . . /1(*9
 <((E > EG @< J > K
 * / & / Q K 7/ 8 = 4 9
@(J H %) (((E @ /3)+ & / 3
.3 P78 ` <((J %) ((G I Q &//
 G I E <(((@(((H 0(((G 0 #, / . , ()
?) / . ( ) <)1(837 5/22) 7 ` 8)+3 . 0 /, (8)
A &) ` 8 " 802)-1*), I //
QFK (1+(*9-(10)+0 ^+0)) N 1 7 @(EI J
@(< 4V 1 U I @(< EJ & EE
 % 5+), +0) 3. /1+2) 03? 2)5+ /,(*+0 3*? +0) 80-,80
03? 5/-*? 7 /,))2/C-)*+ /, 523++),(*9 +)380),1 +0)46),)

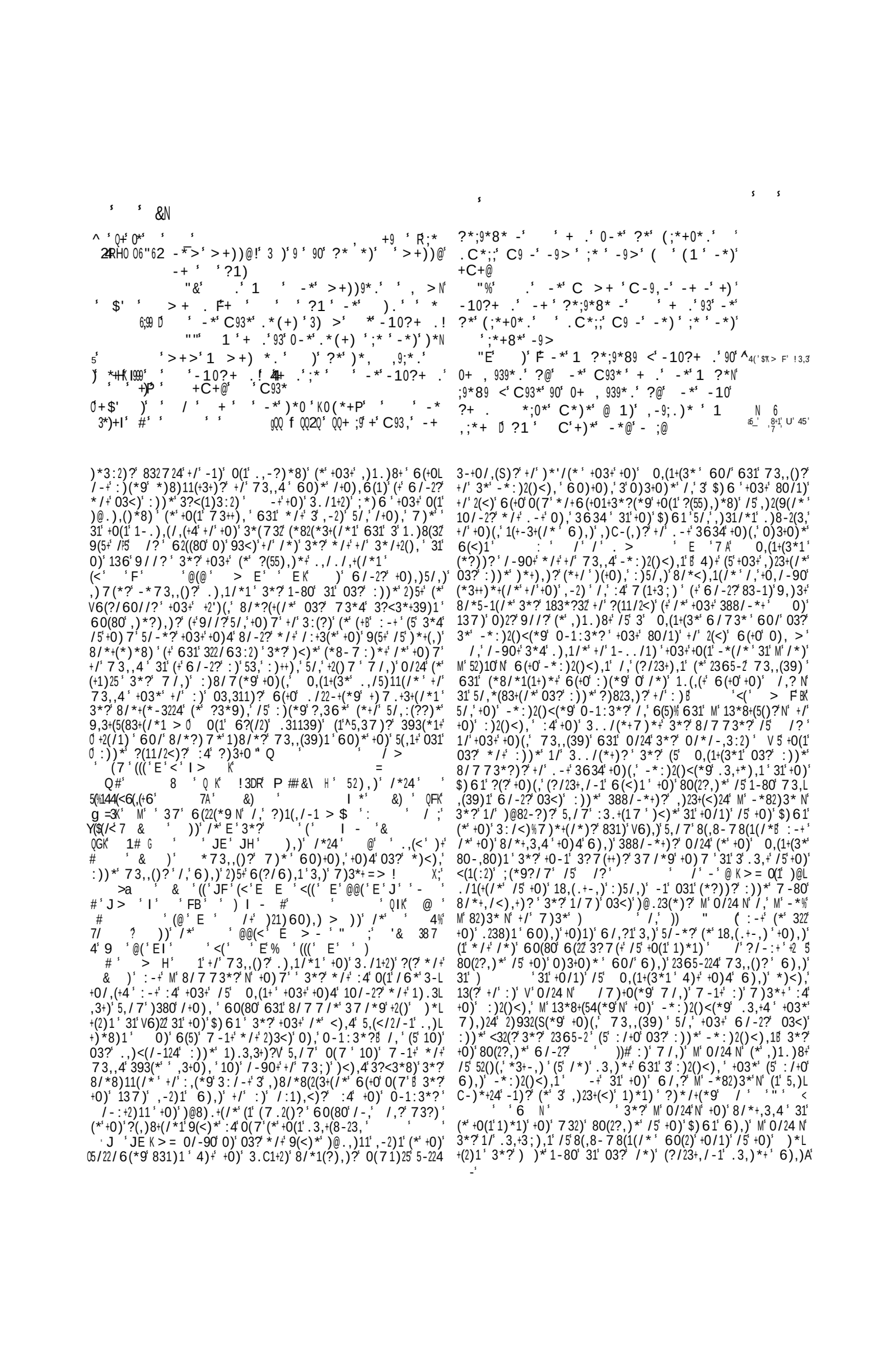
13+(15()? 3*? .2)31)?B +0)4 +0/-90+ +0) 71)2<)1 ,(80 3*?
03. .4 3*? 1)) 7)? +/ V ,)(9* 31 ;(*91 _ 6(+0/-+ 0(7 3*?
0(1 5)22/6 %23: /-,),1 60/ 03? +,)3+)? +0) 7 31 80(2?,)*
3*? ;) .+ +0) 7 -*?), 53, 7 /,) +03* 631 39,))3:2) +/ +0) 7 %
 / @ 4 > (((> J K 3*4 5+0) 7 (+ (1
. ,/:3:2) 6),) (*. ,/1.),/-1 8(,8-7 1+3*8)1 3*?)@) 7 .+)?
5, 7 .),1)8-+(/* +0)4 03? 3: -*?3*8) /5 1.(,(+-32 9(5+1
+0)4 9,) 6 <3(* /5 +0),(?(1+(*8+(/*1 3*? +0)4 ?)) 7)?
+0) 7 1)2<)1 . ,)%) 7 (*)*+ 3: /<) /+0), 80-,80)1 3*? +0-1
+0)4 6),) 2)? +/ -1) +0(1 (7 . ,/ .), 23*9-39) /*) 37 /*9
3*/+0), : -+ +0) 3. /1+2) (*+(7 3+)? +03+ +0)4 6),) -*?),3
23 7)*+3:2) ?)2-1(/* (((F K (*?))? 7 /1+
8/,?(3224 ?)1(,)? +03+ +0)4 10/-2? :) 31 03. .4 . ,/1.),/-1
0/*/-,3:2) 3*?) 7(*)*+ 31 +0)4 +0/-90+ +0) 71)2<)1 5/,
+0)* 0) ; *) 6 +03+ 0) 10/-2? 03<) 8/ 75/,+ (* +0) 7 3*?
8,)?(+ 37 /*9 +0) 7 5 +0)4 03? ,)3224 M ,)(9*)? 31 ;(*91 N
0) 10/-2? 03<) 0 ,)(9*)? 6(+0 +0) 7 N (*1+)3? /5 :)(*9
?)1.(1)? :4 +0) 7 (* 3??(+(/* +/ 322 0(1 /+0),=+,(321 3*?
.),1)8-+(/*1 / S 3 > (H > <
G
 R /&)) ; ! 1@/.1Q,]@ 6(1 @@<((JG /+)21)L
60),) M) 03<) :))* 13+(15()? _ I R M, F,FG _ %
/%R)) /* & @((E > R (8(*91 a
8g P C 3 @< E & (JJ @(@ H < H)
I * &) /? a @P C E 9 @(6) < E
(((?<), :(-7 /.+3*?(I ! # & A
-'@=38,(U 68,52U E - ((E @ 3&)+
+ I > J +3. .)3,)? +/ +#3-2 +03+ /? 03? 80/1)A
0(7 3*? +0) /+0), 3. /1+2)1 +/ :) 1)+ 3. 3,+ 2(;) +2(/1) 8/*L
?) 7*)? .),1/*1(*+0) 923?(3+/,(32 10/61 60/ 6),) :, /-90+
5/,+0) 6(+0/-+ 3*4 ?)5)*1(<) 3, 7/-, +/ 5(90+ 6(+0)380
+0), / ,+/ :))@. /1)? +/ 6(2? :)31+1 +(22 +0)4 6),) 123(*
(* +0) 1(90+ /5 +0) 1.)8+3+/,1 3*? 60/ (5 +0)4)183.)? 3+
/*) +(7) 6),) /*24 ,)1),<)? +/ 3*/+0), ?34 /5 123-90+),
:)(*9 M 3. . /(*+)? -*+/ ?)3+0 N 3*? 03<(*9 */ 0/.) /5
7/,) +03+ 3 10/,+ ,)1.(+) 0-1 +0) 3. /1+2)1 6),) ?(1L
+(*9-(10)? :4 3 23,9), 103,) /5 8/*+) 7 .+ 03,?10(. 3*?
1-55),(*9 +03* 3*4 /5 +0),(:,)+0,) * 3*? 6),) 3. . /(*+)?
+/ 73,+4,?/7 3+ +0))*? /5 +0),(8/-,1) 3*? 31 +0) /*24
+), 7(*3+(/* /5 +0),(+,(321 +03+ 8/*52(8+(*9 6(+0)@8))?%
(*924 -,9)*+ ?(55(8-2+()1 3*? ?(1+,)11)1 (* .3+() *+ 53(+0 3*?
3

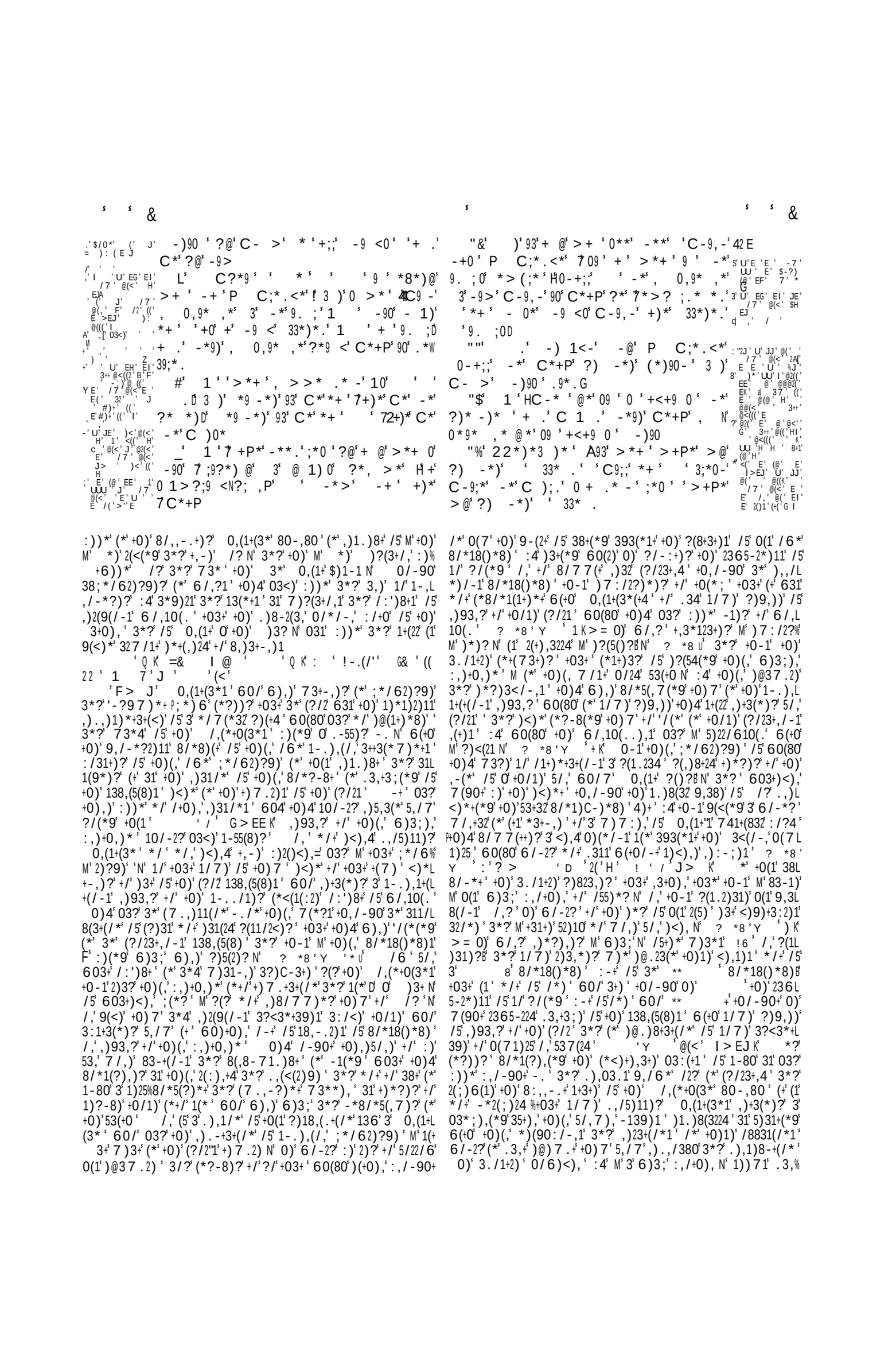


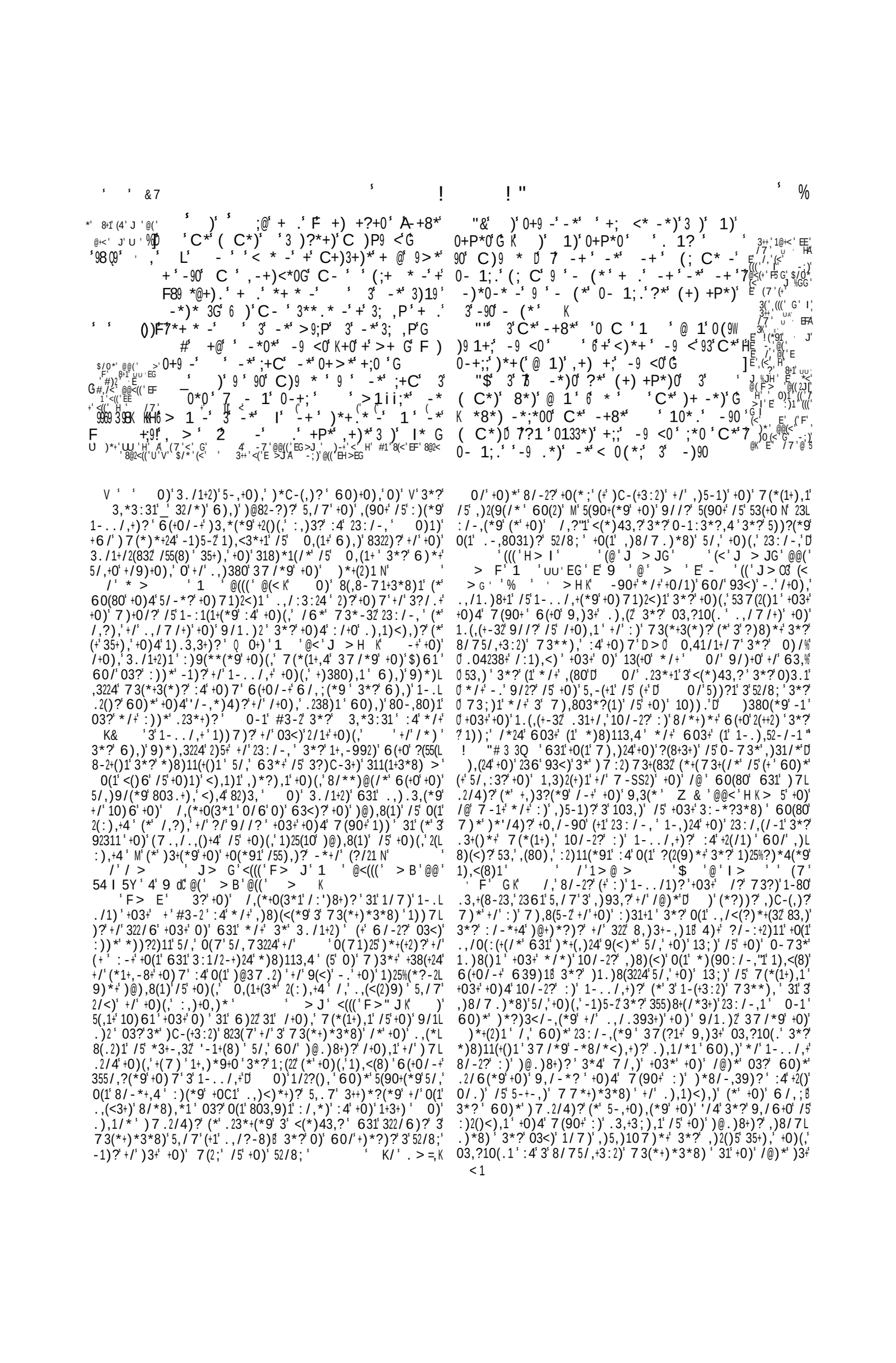


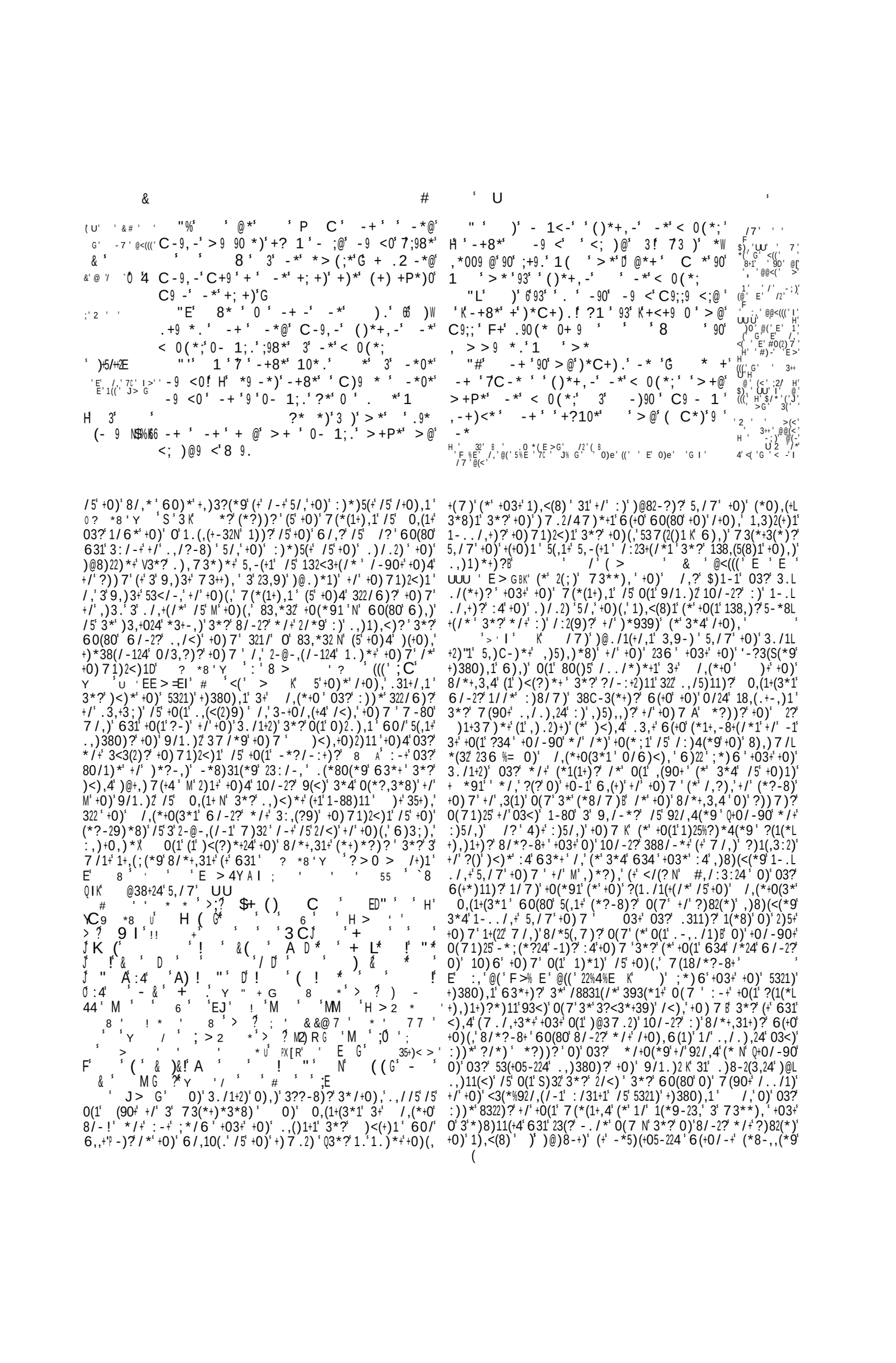


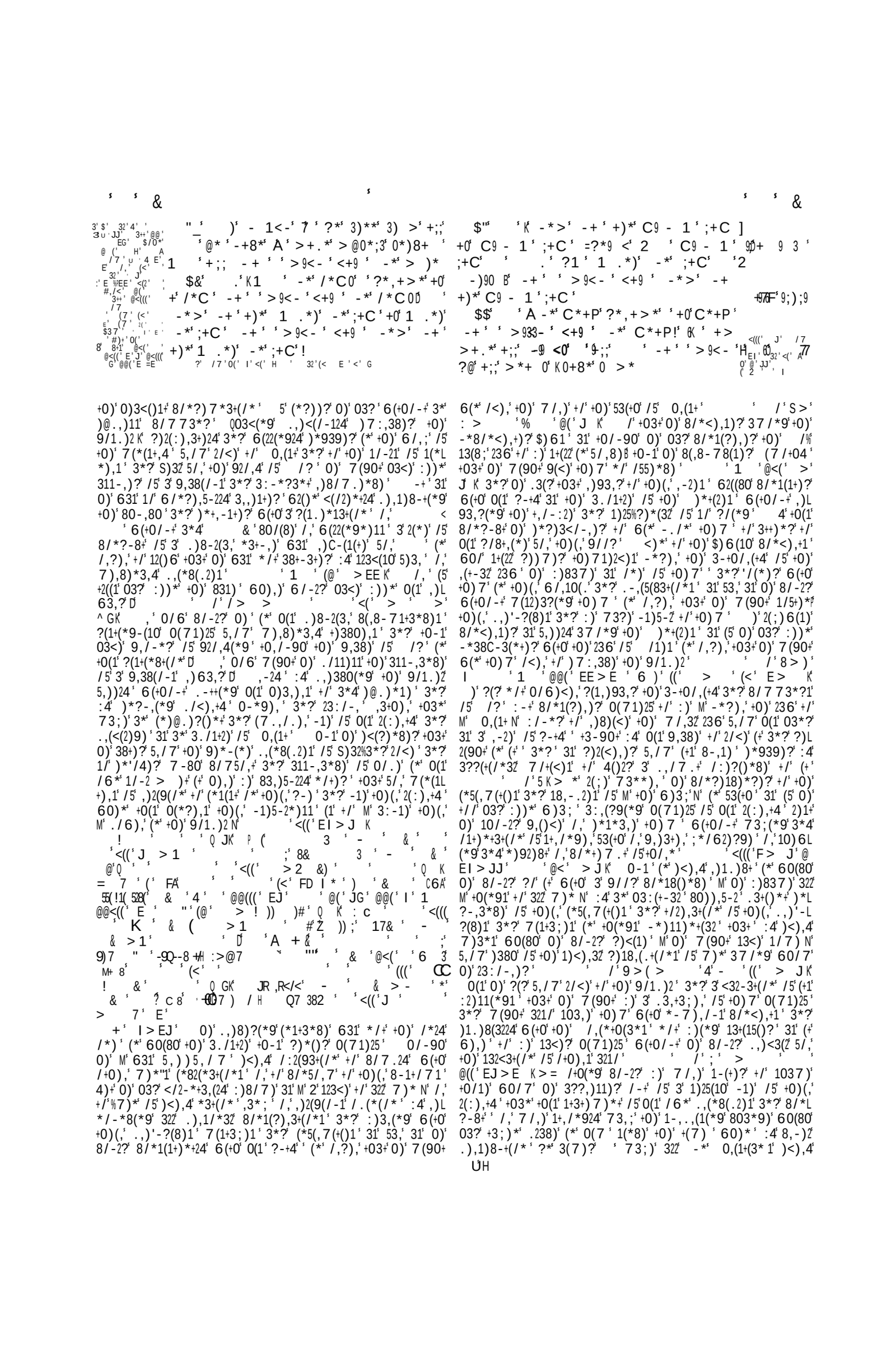


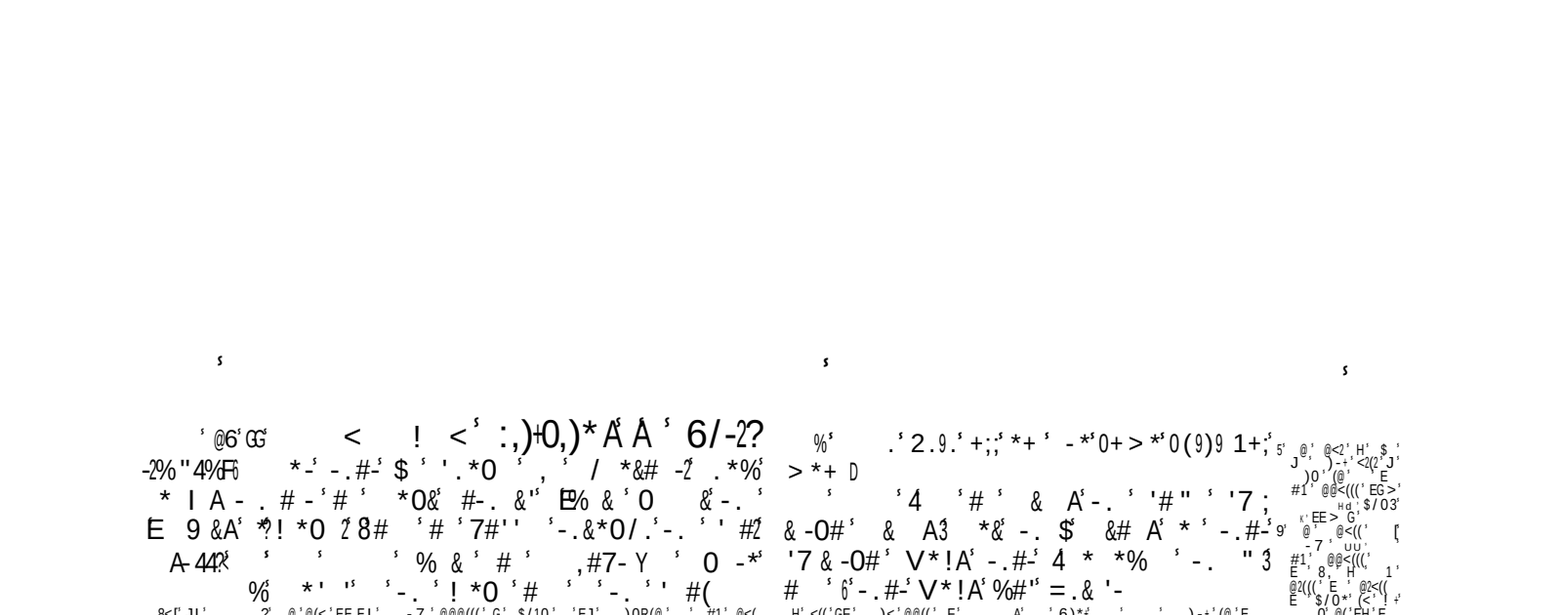


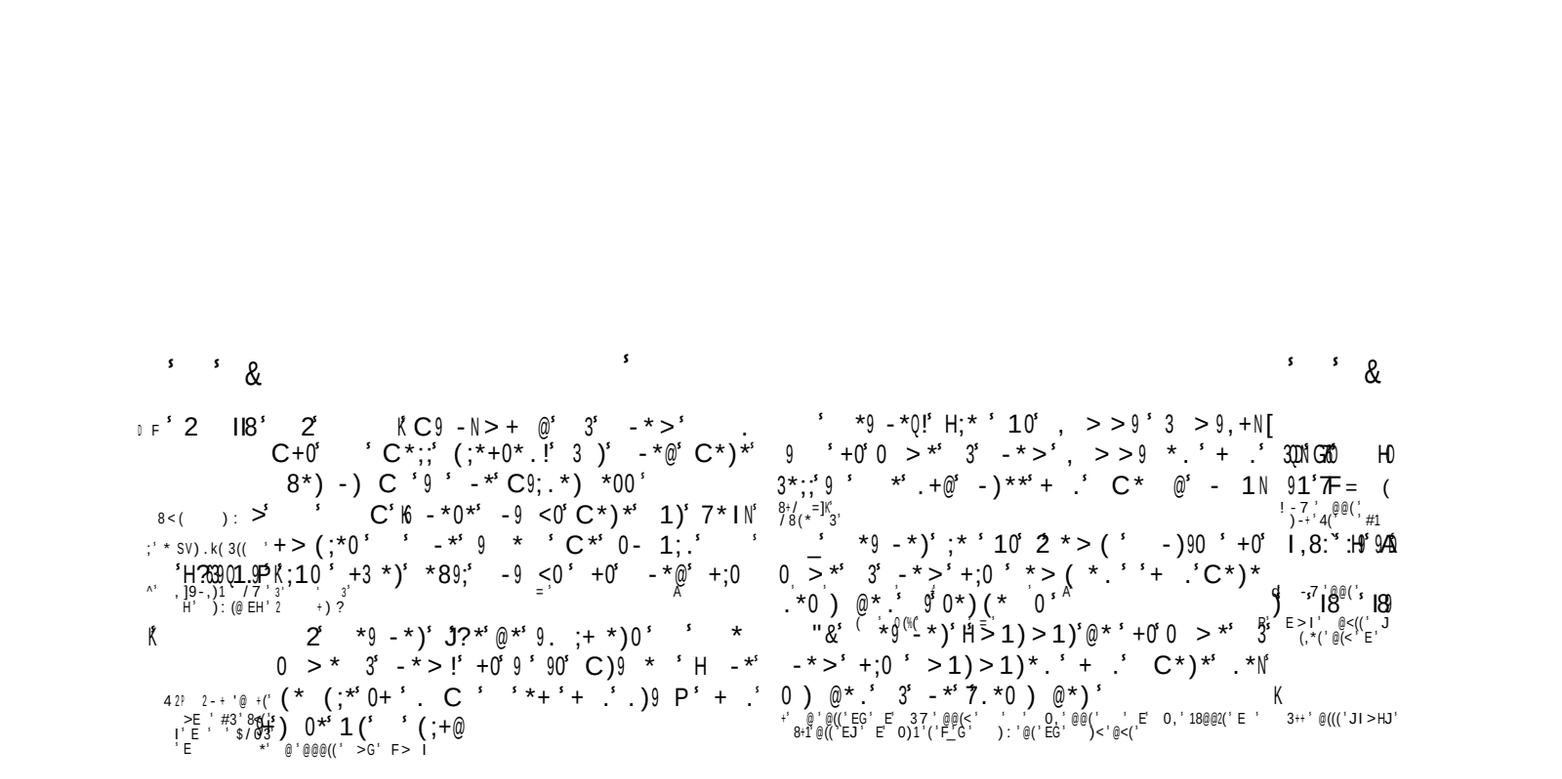


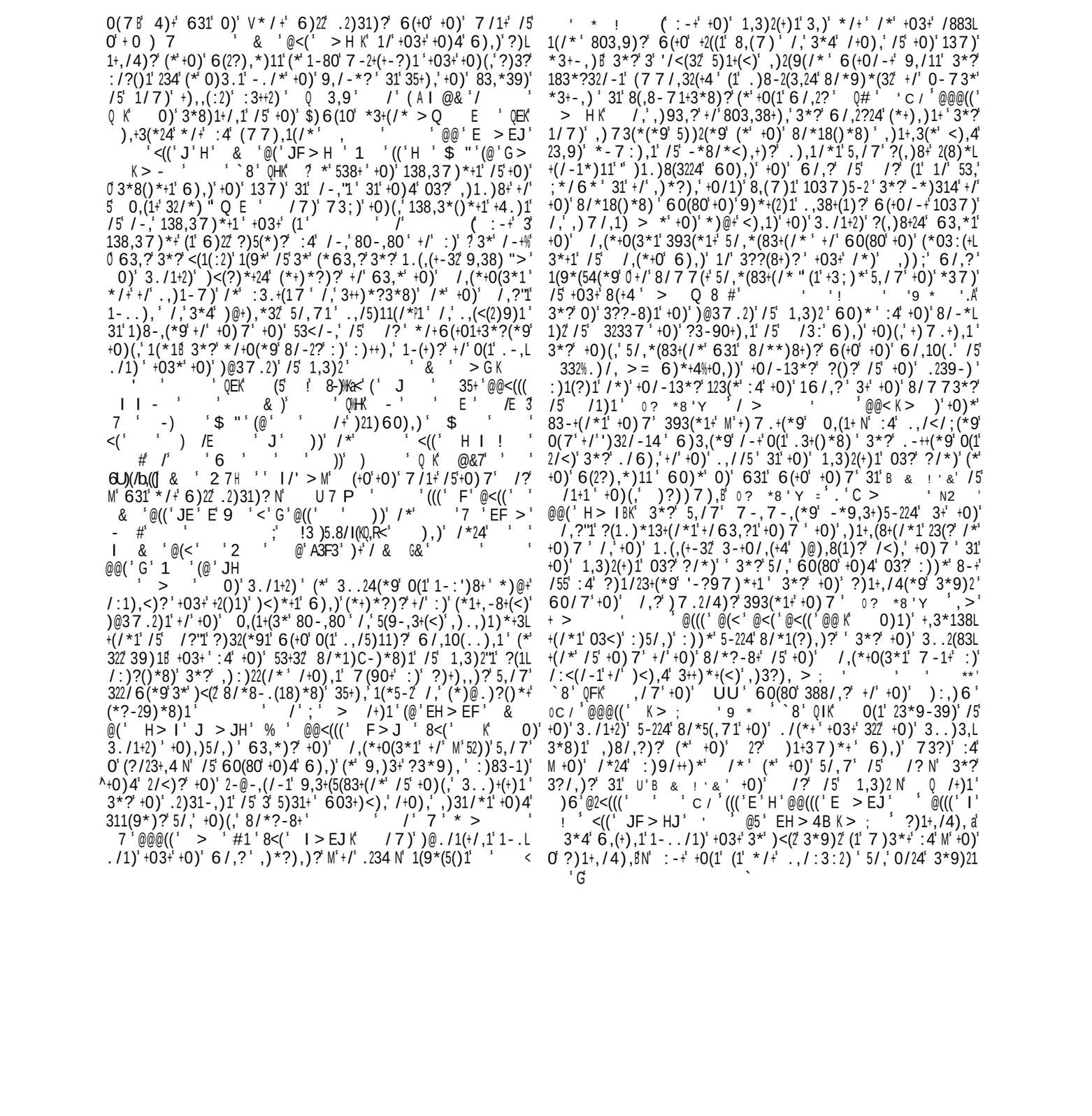


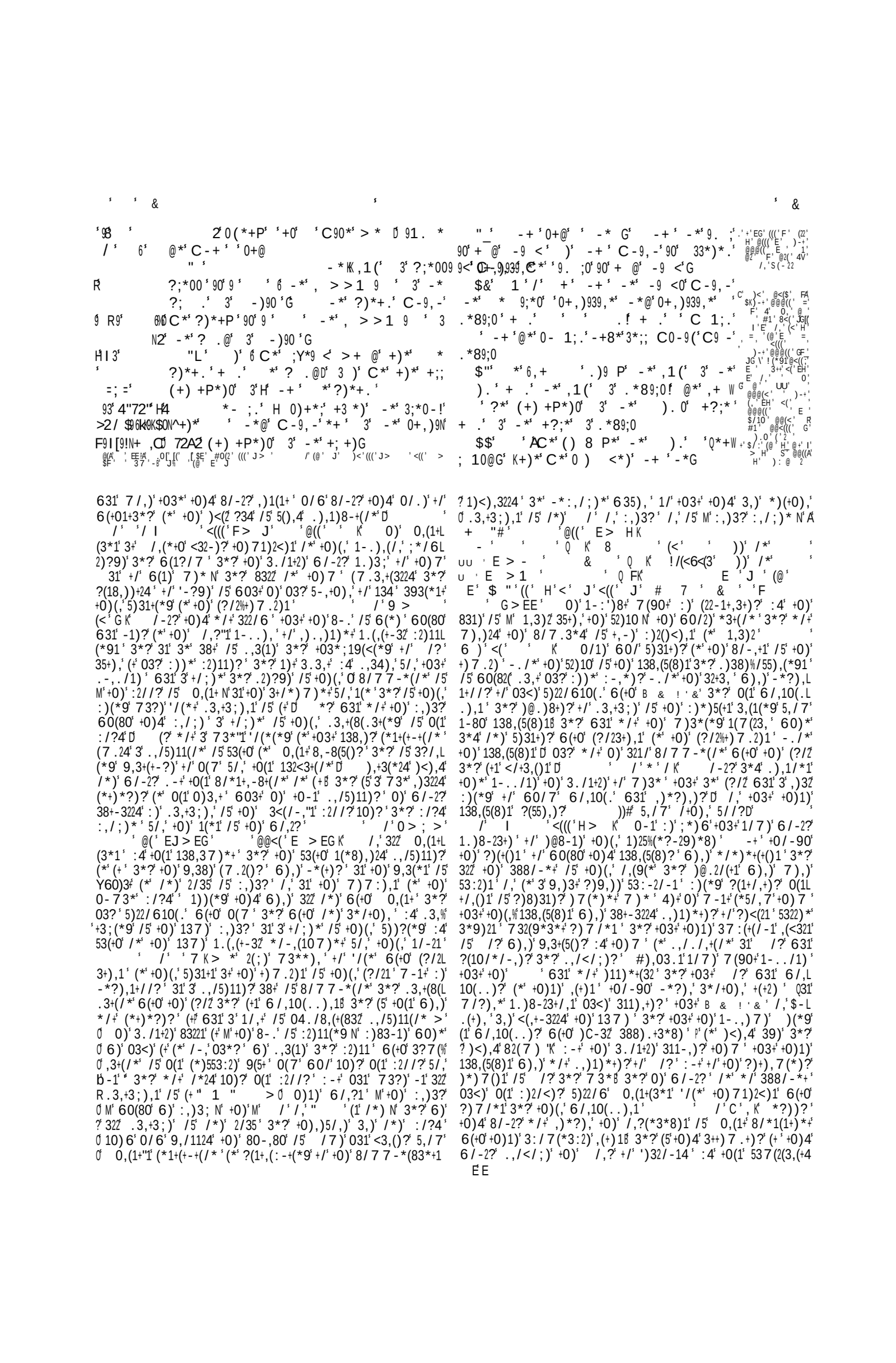


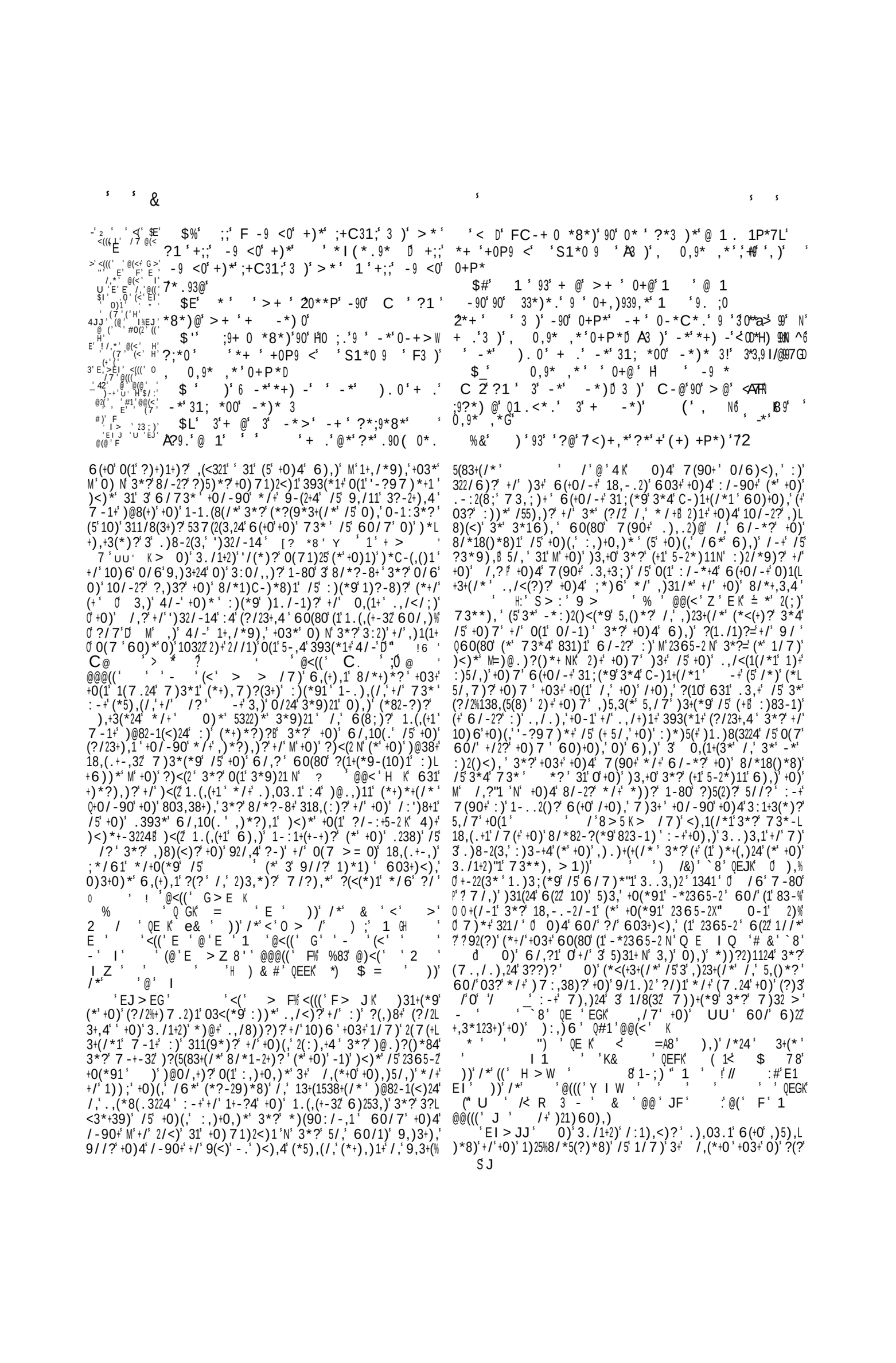


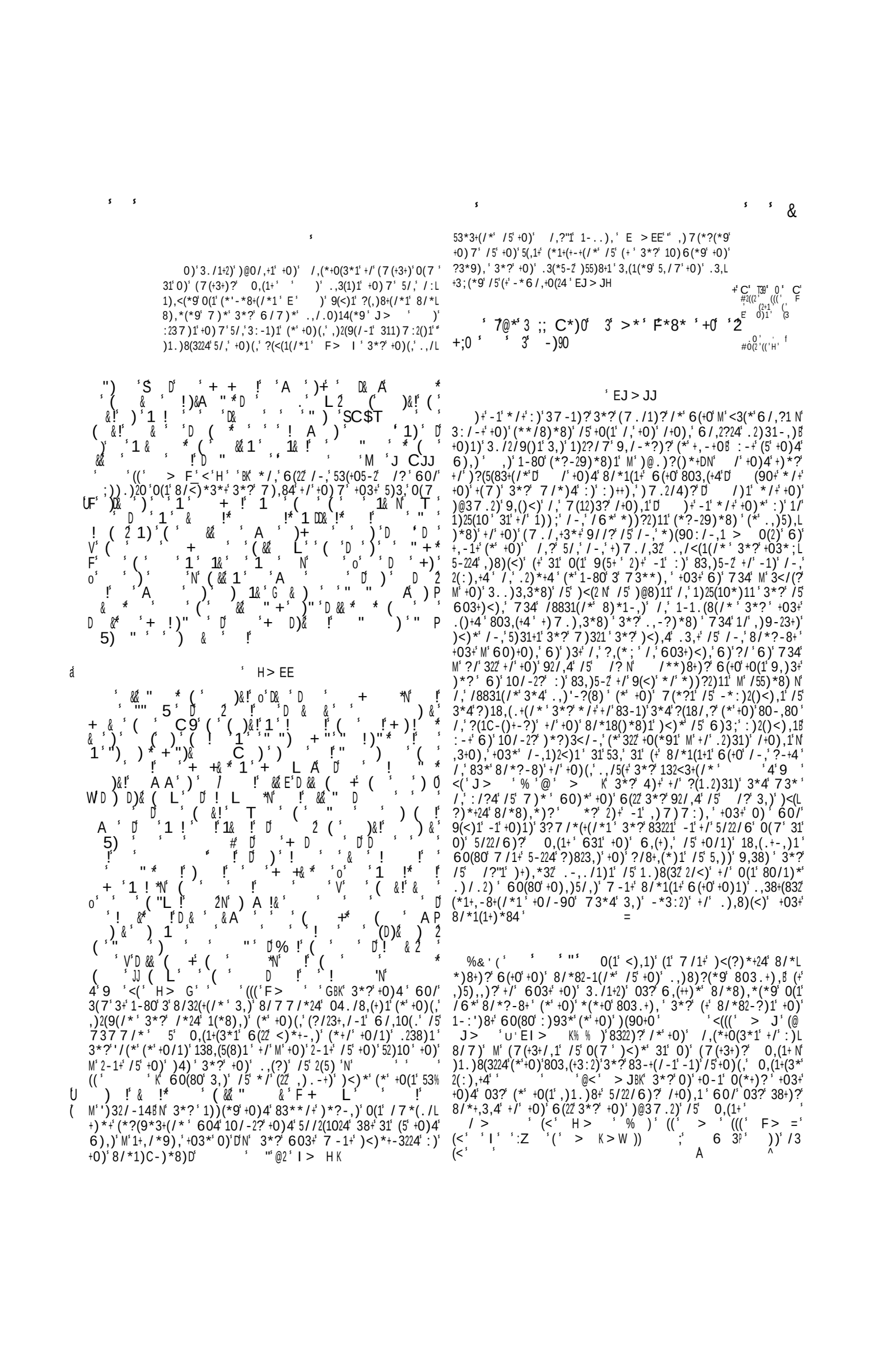


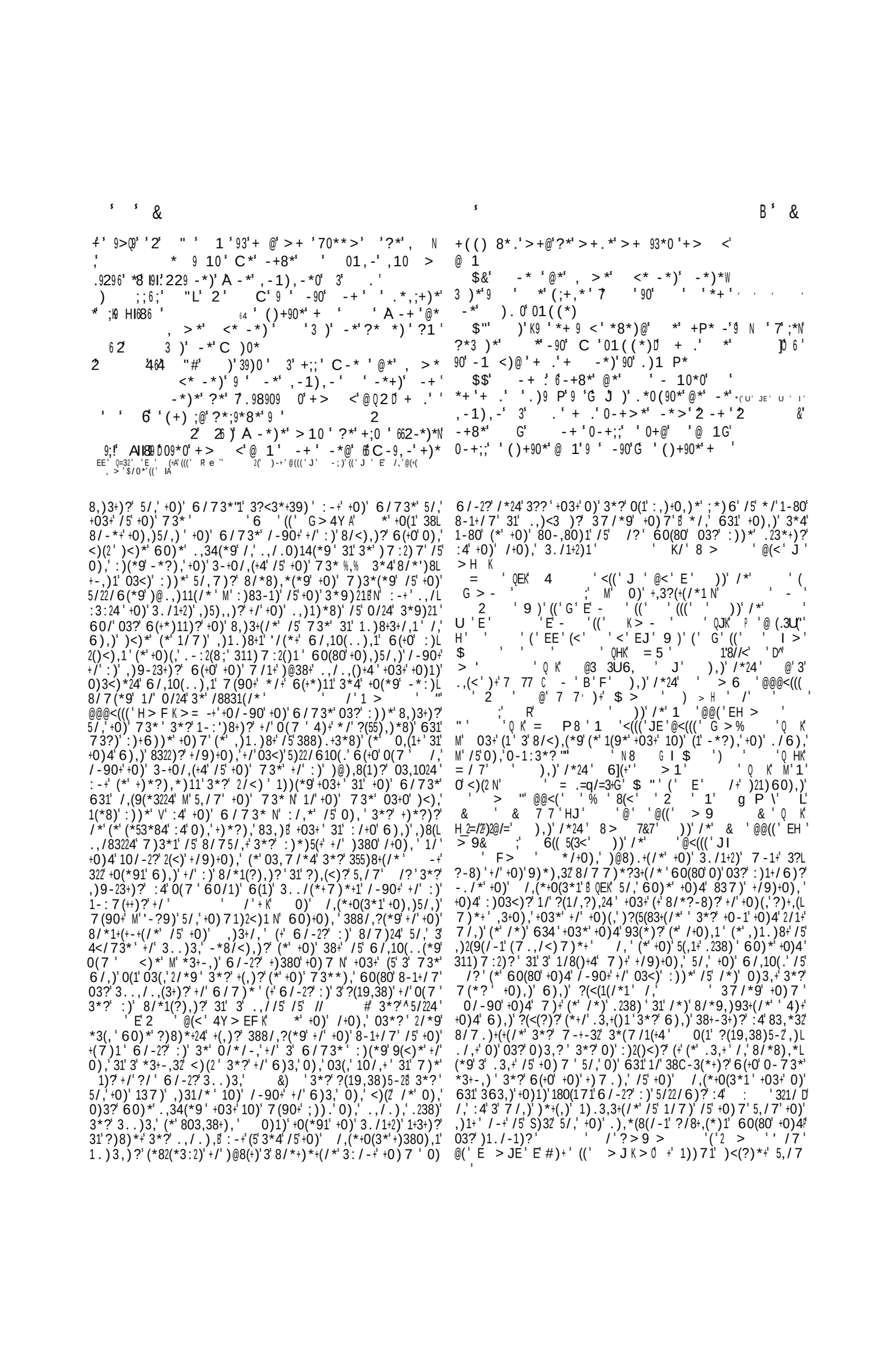


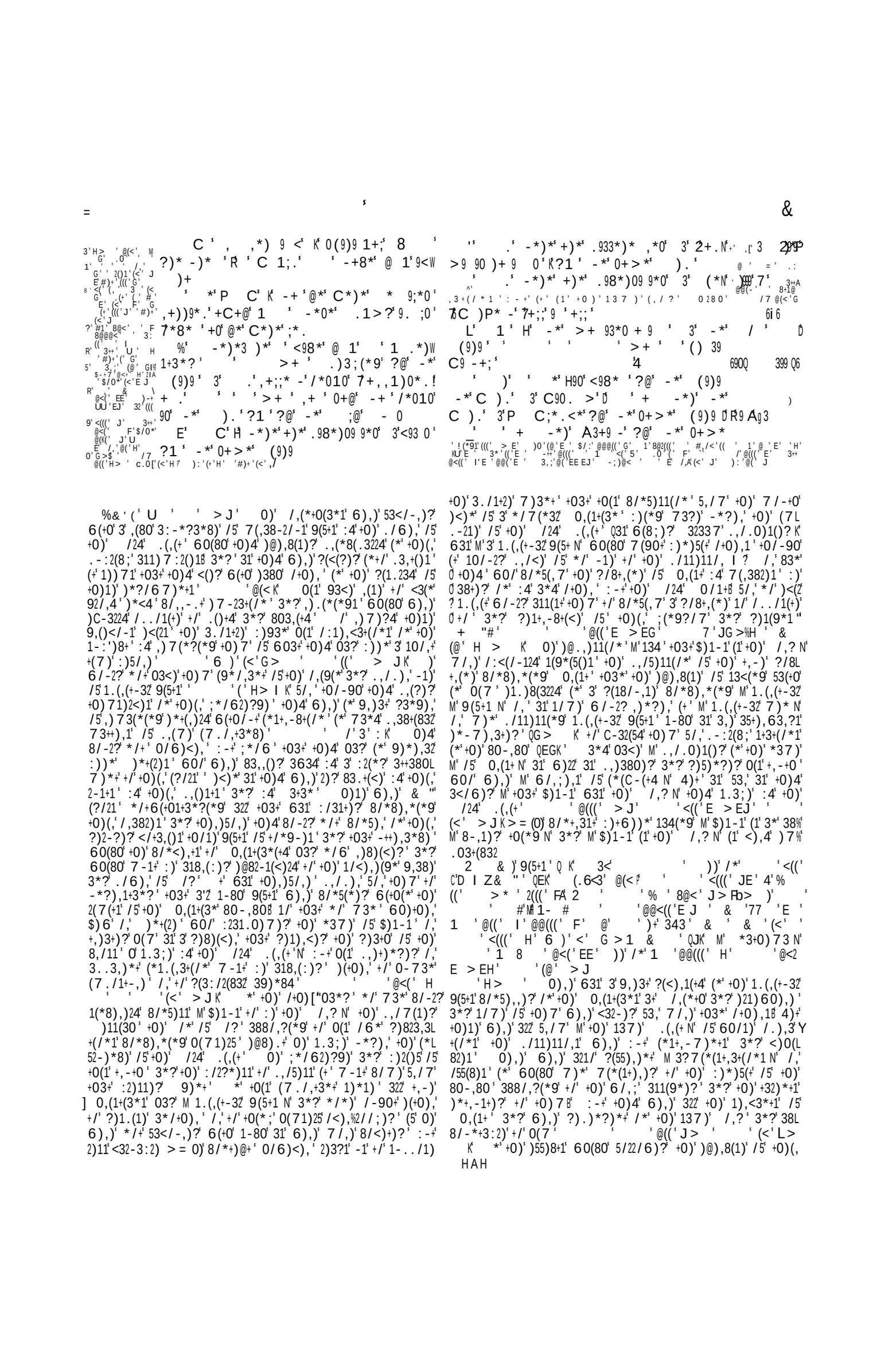


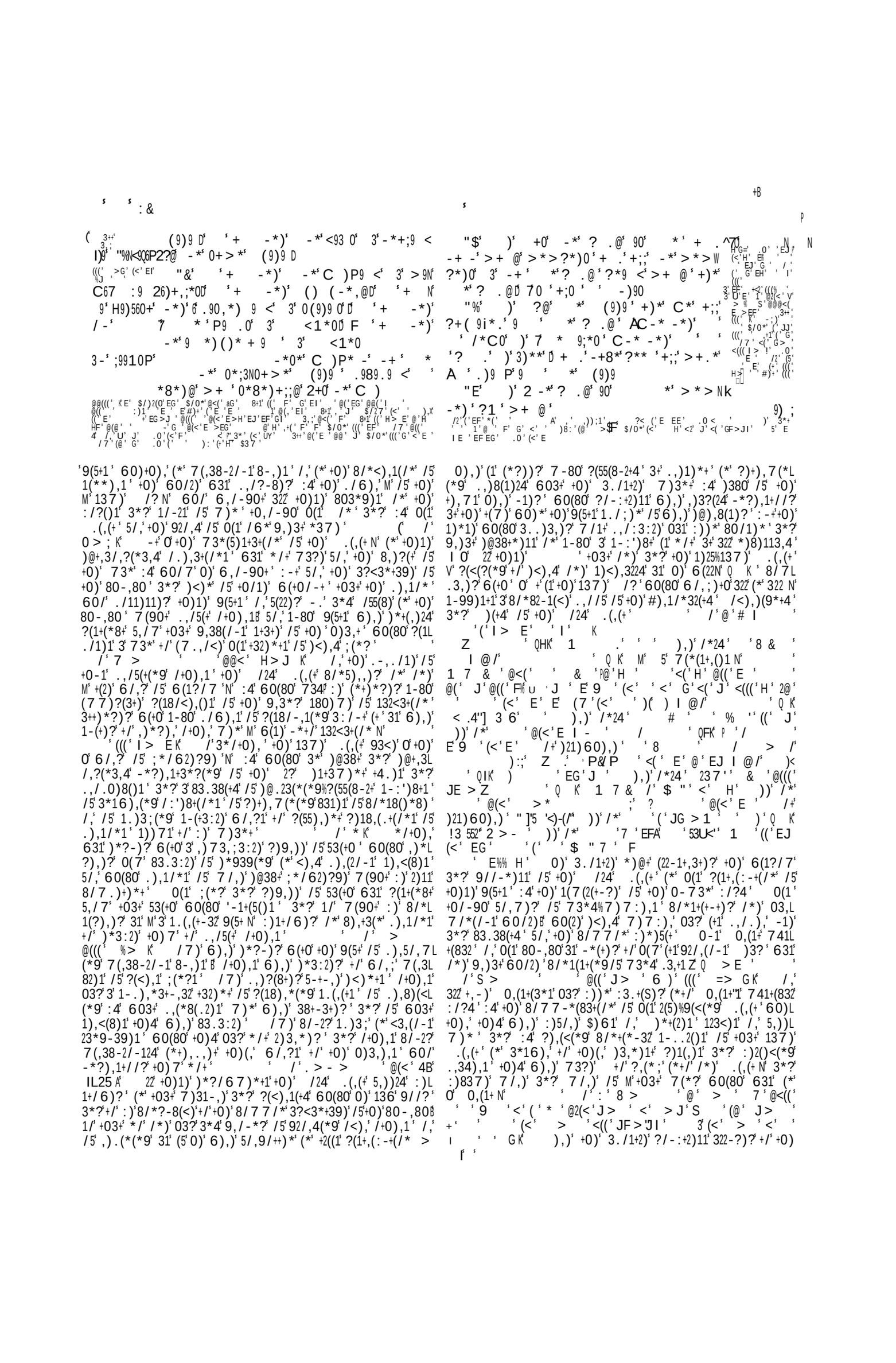


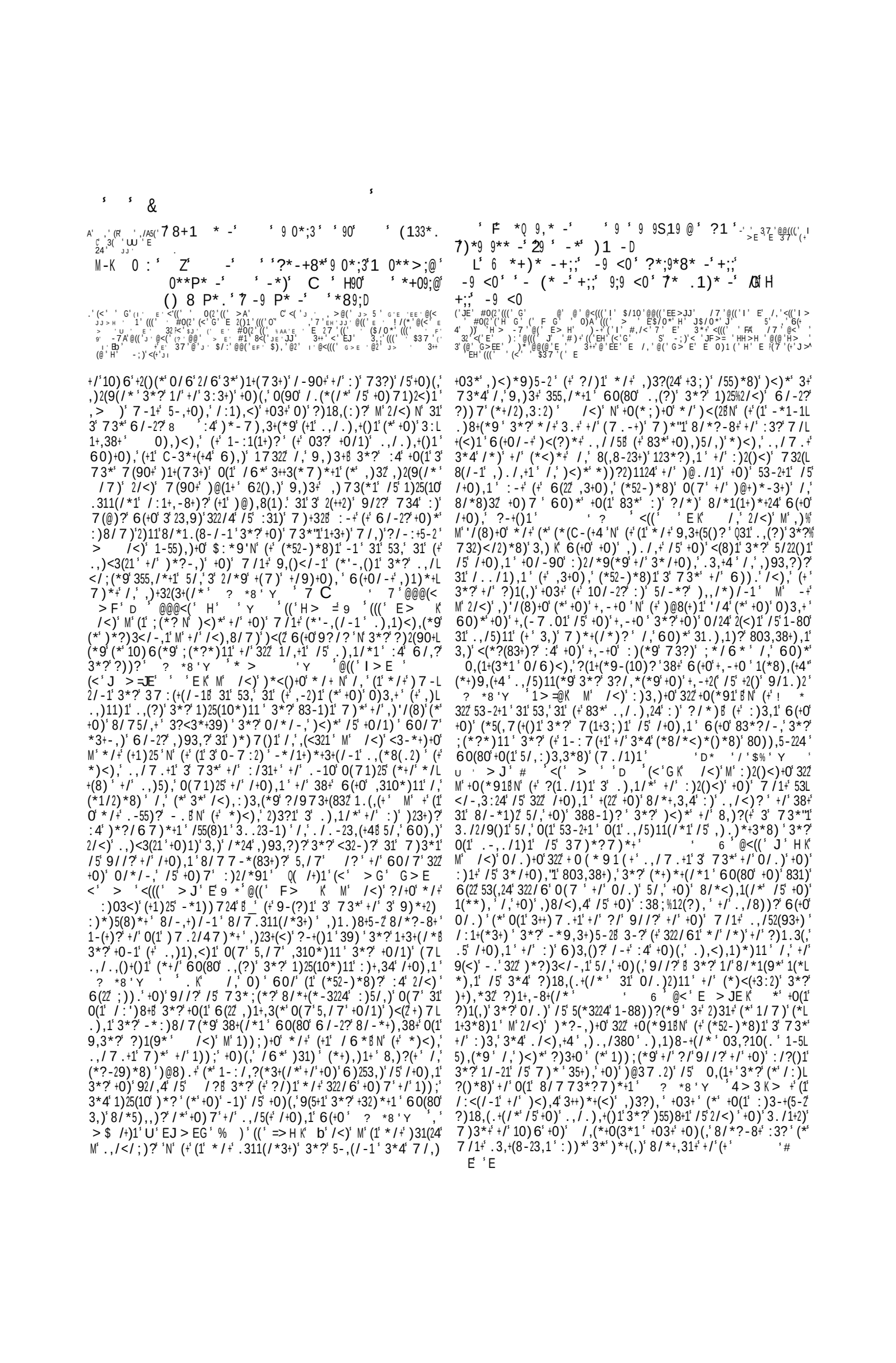


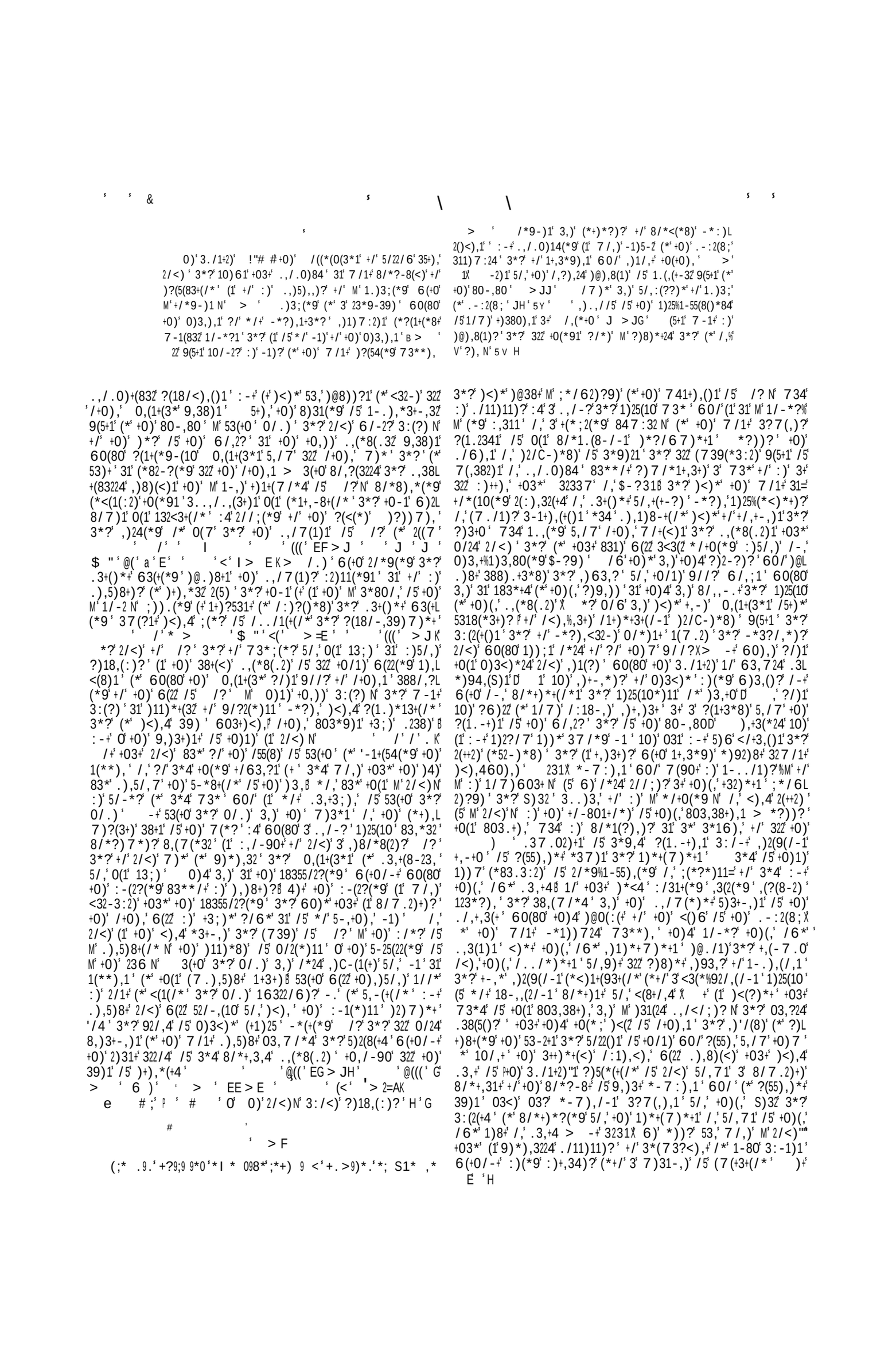


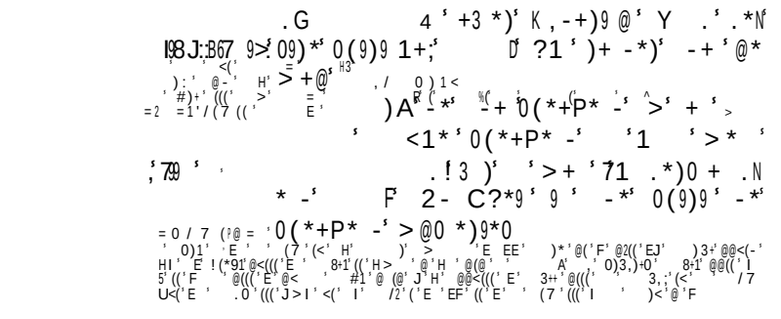


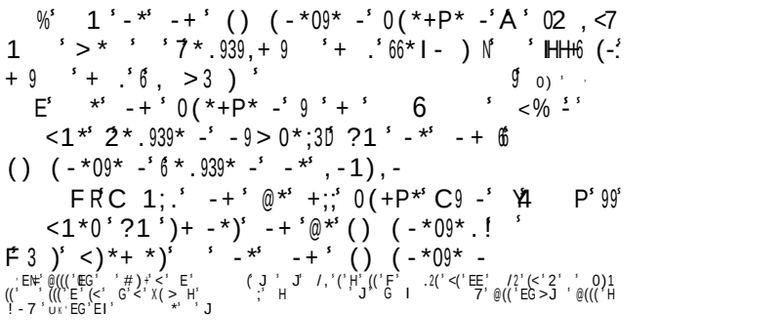


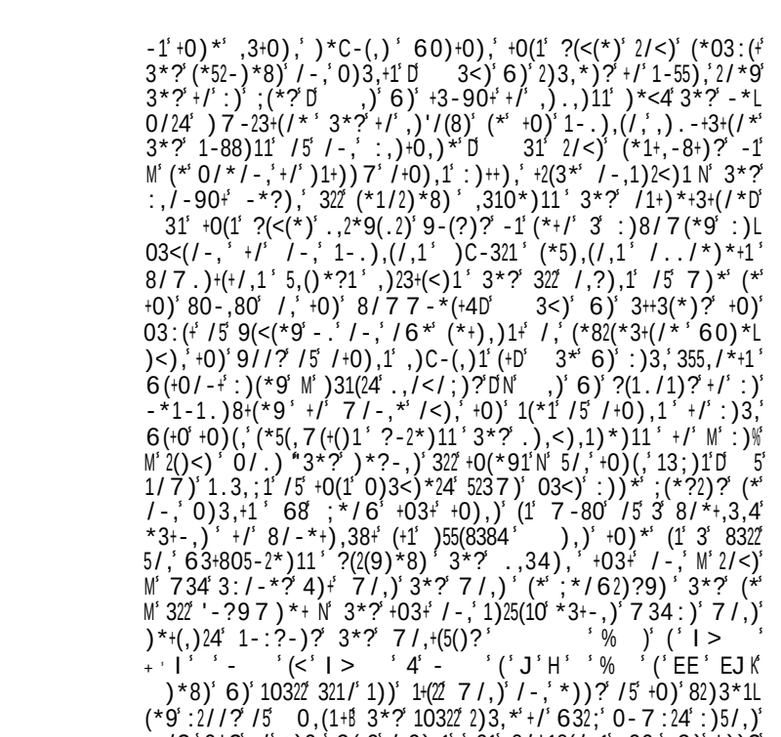


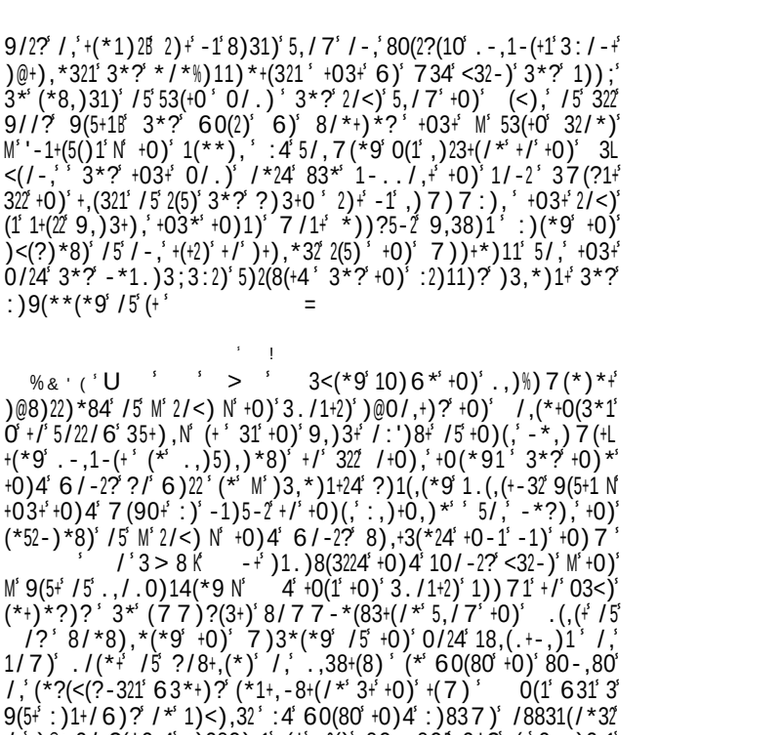


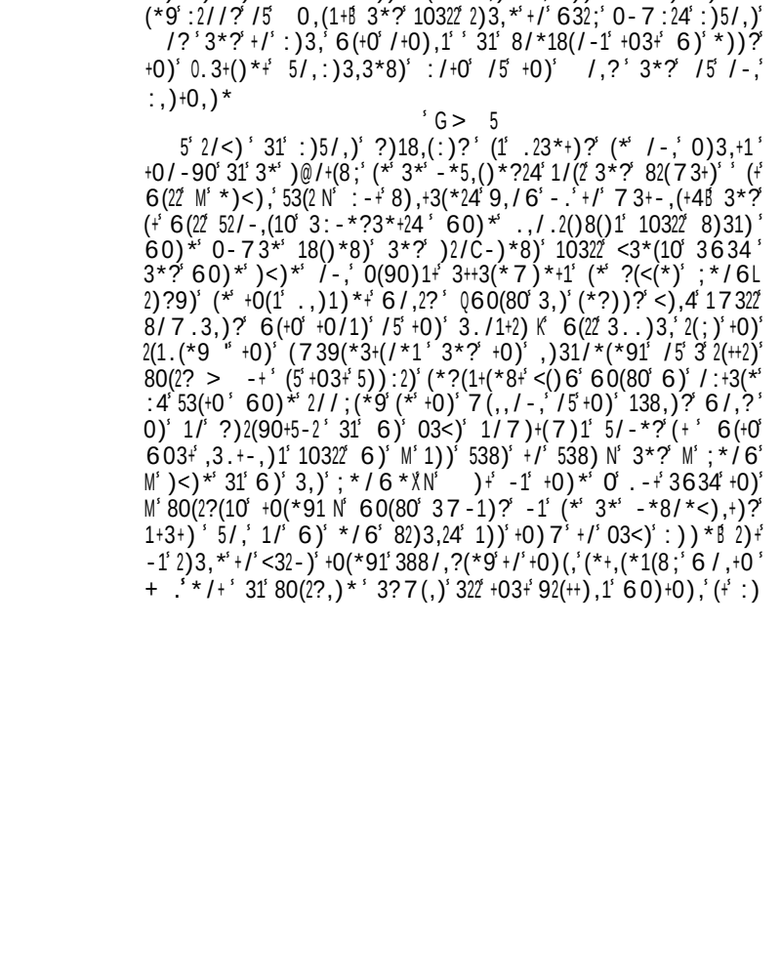


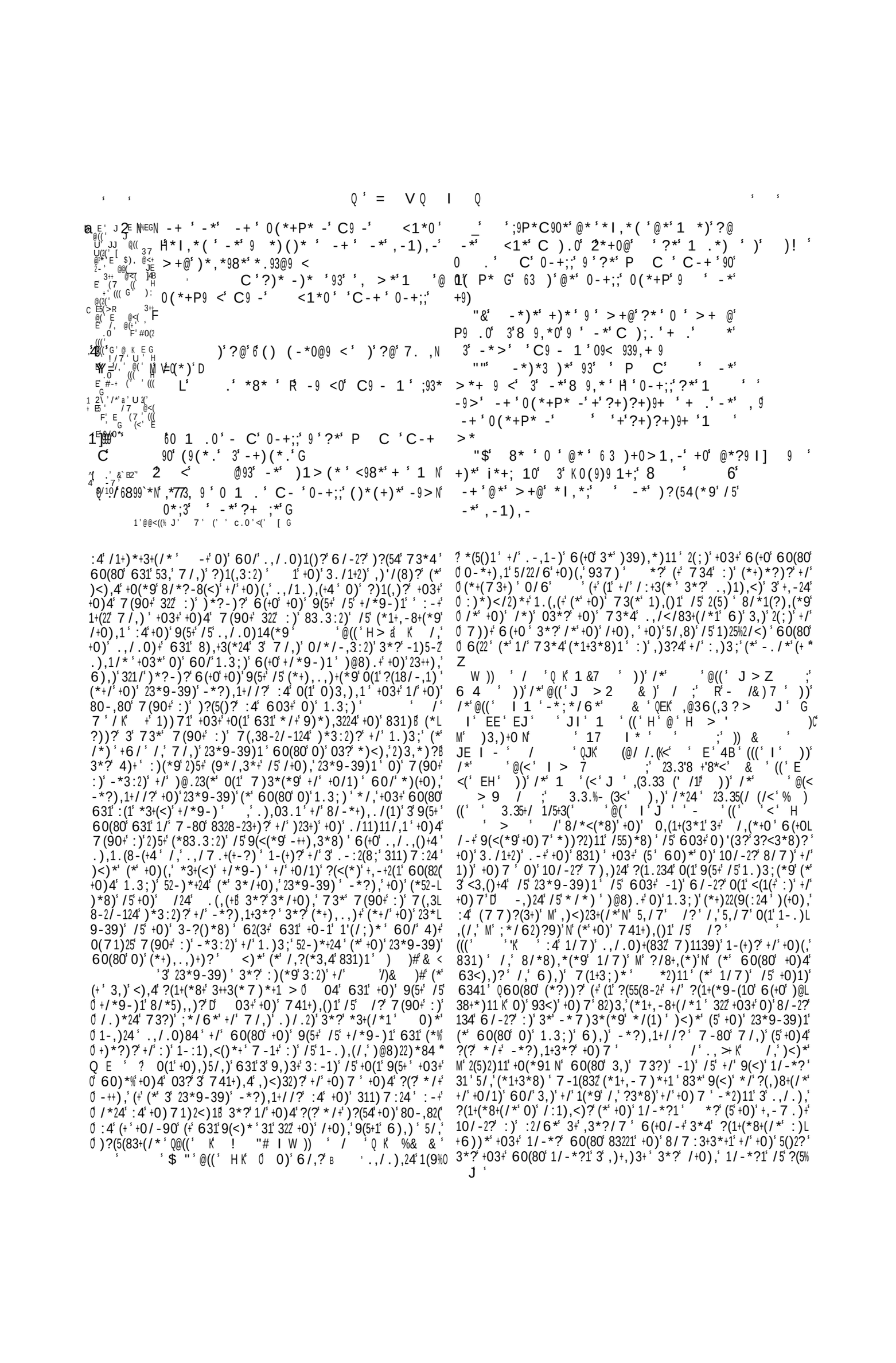


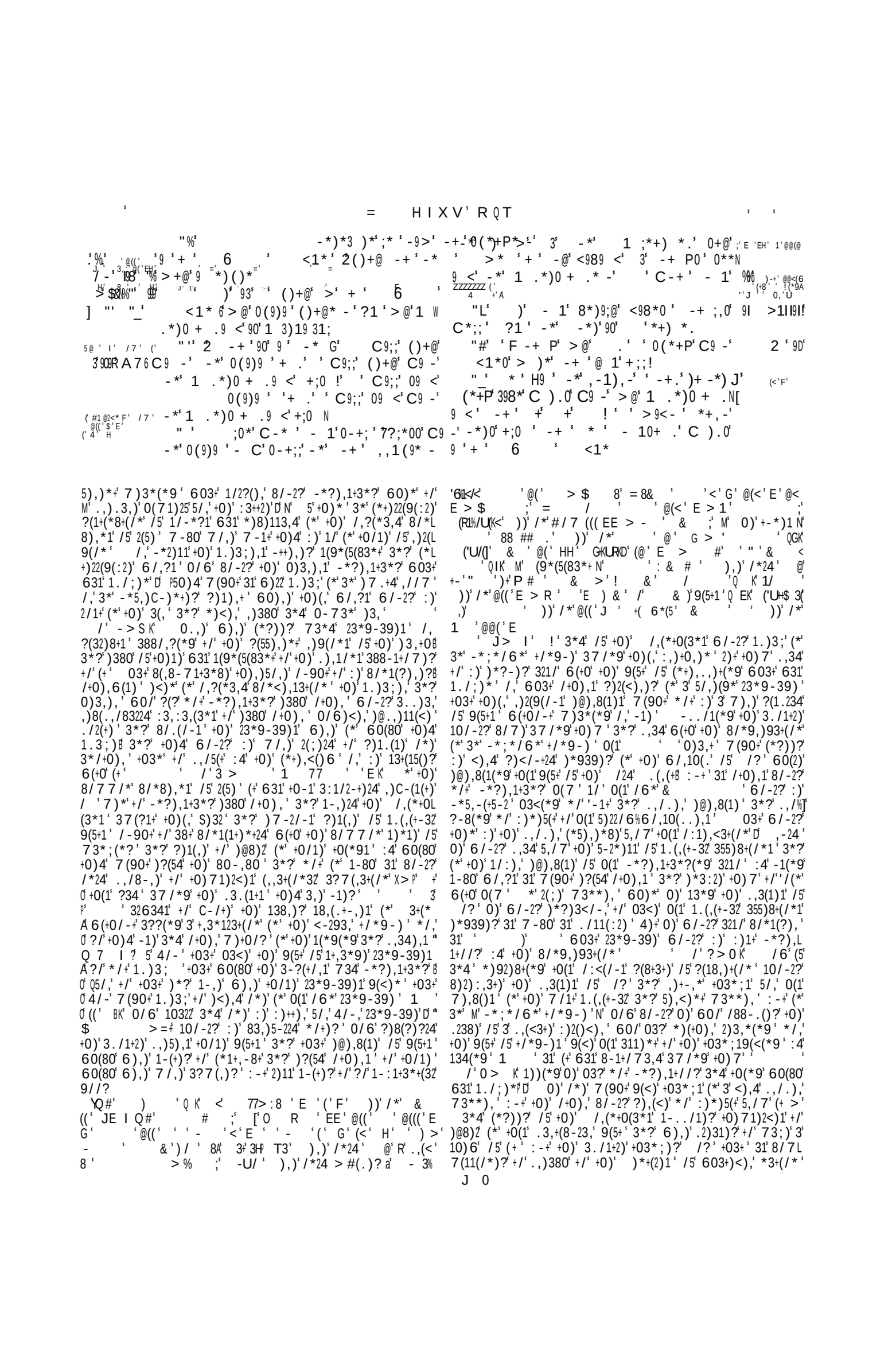


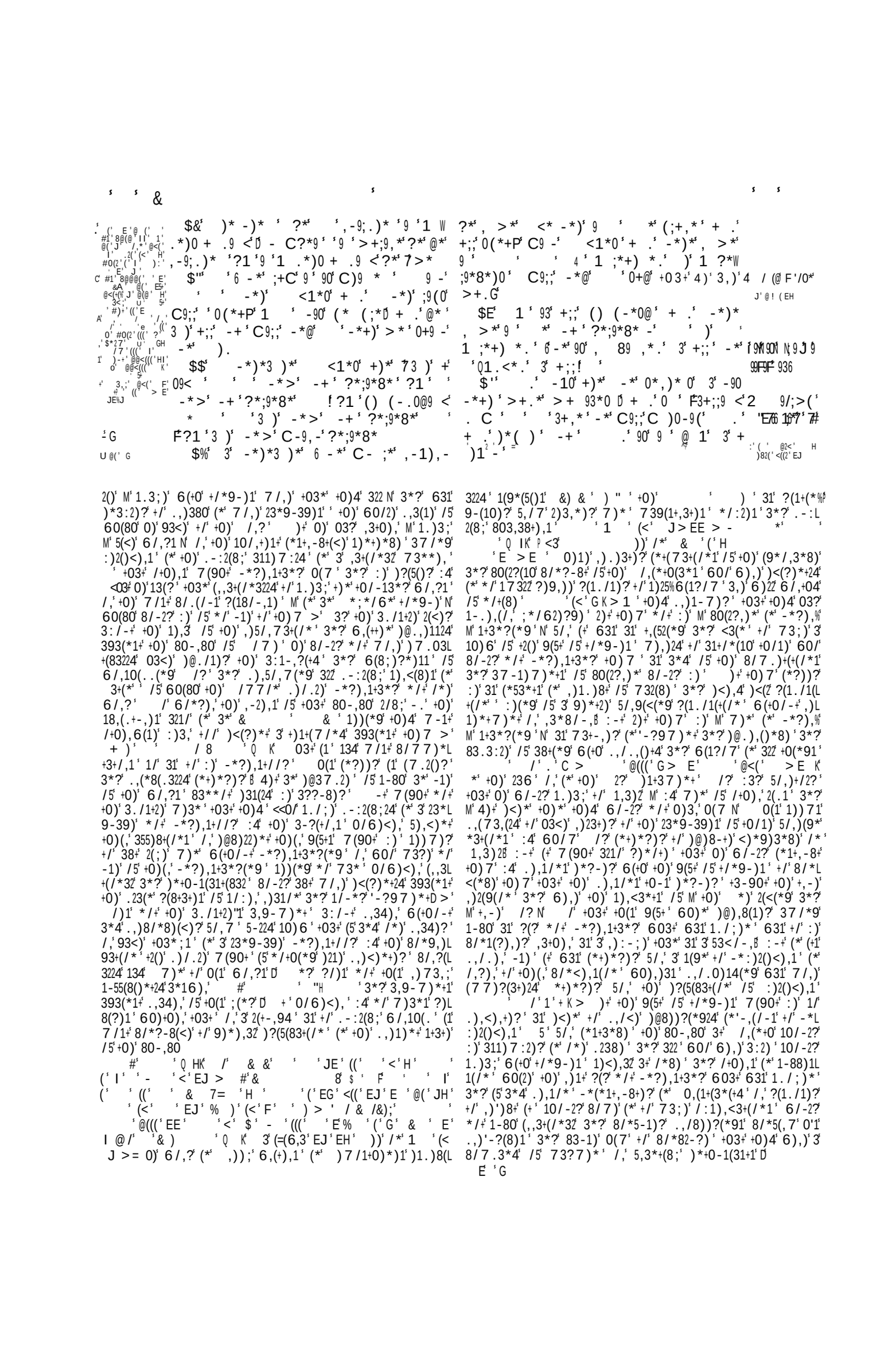


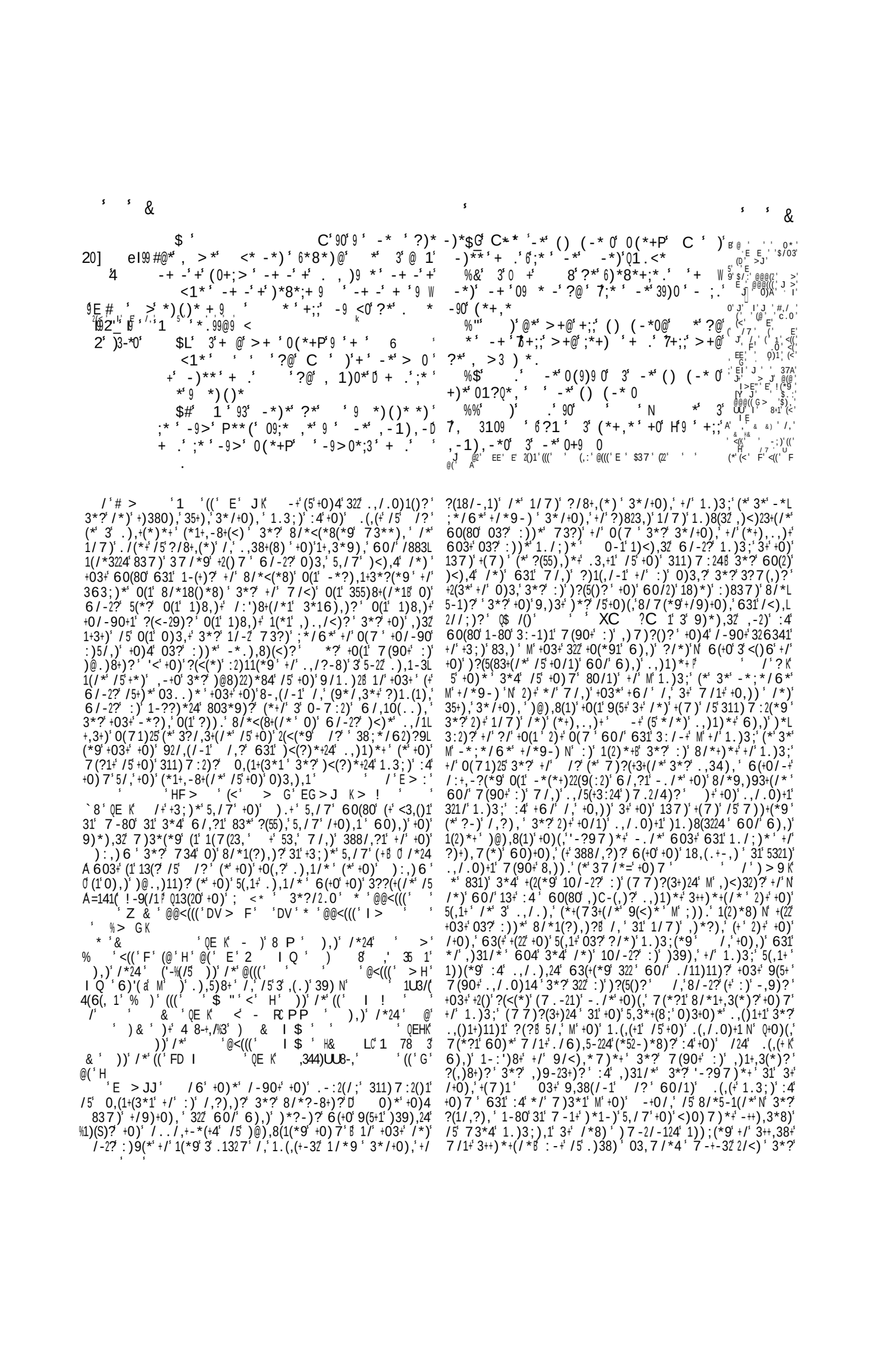


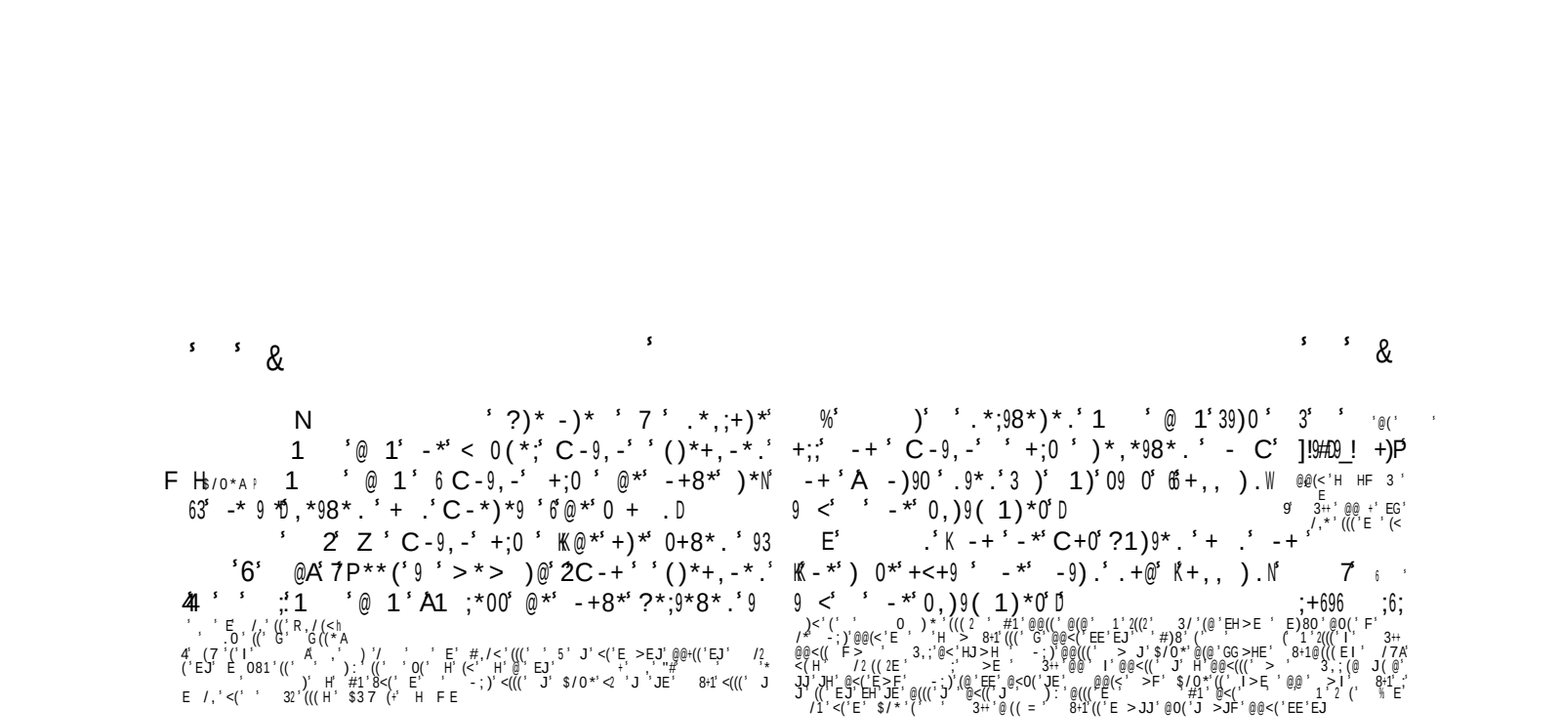












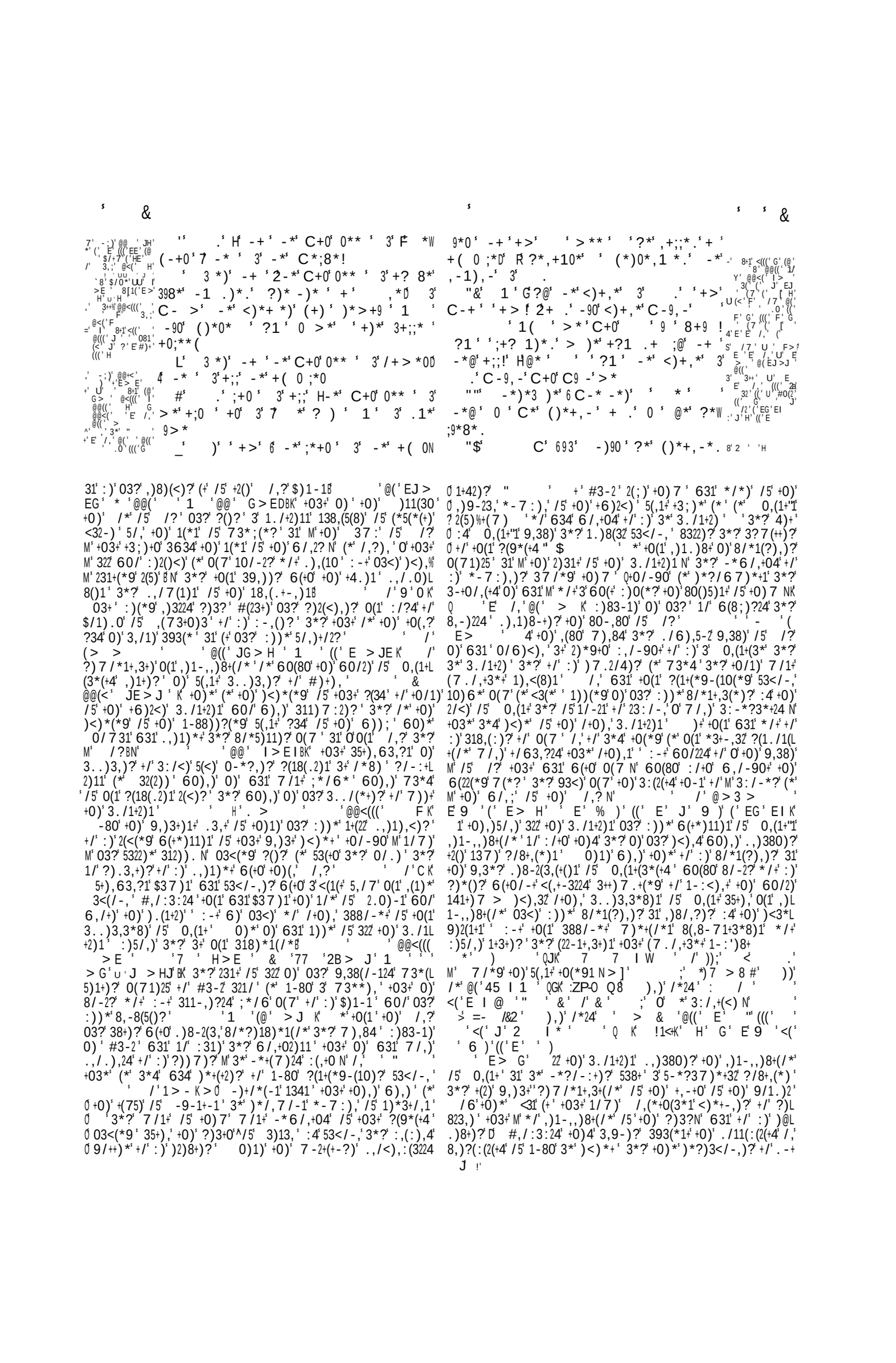
3*? 3,,3(9*)? :4 603+ +0)4 0)3, 0) <),4 0 1)8,)+1 /5 M +0)(, 0)3,+1 N 1))7 +/ :) ?(182/1)? :4 +2())@.),(7)*+32 3??,)11 /5 +0) .,)380), 3*? +0)4 3,) (*?-8)? +/ '/(* (* +03+ 6/,10(. 60(82(+0)4 :)5/,) ?)1.(1)? 3*? +/ 8/*5)11 +03+ M /? (1 /5 3 +,-+0 37/*9N +0/1) .),1/*1 Z60/7 .),03.1 +0)4 837) .,).3,)? +/ ?),(?) - ((F G K

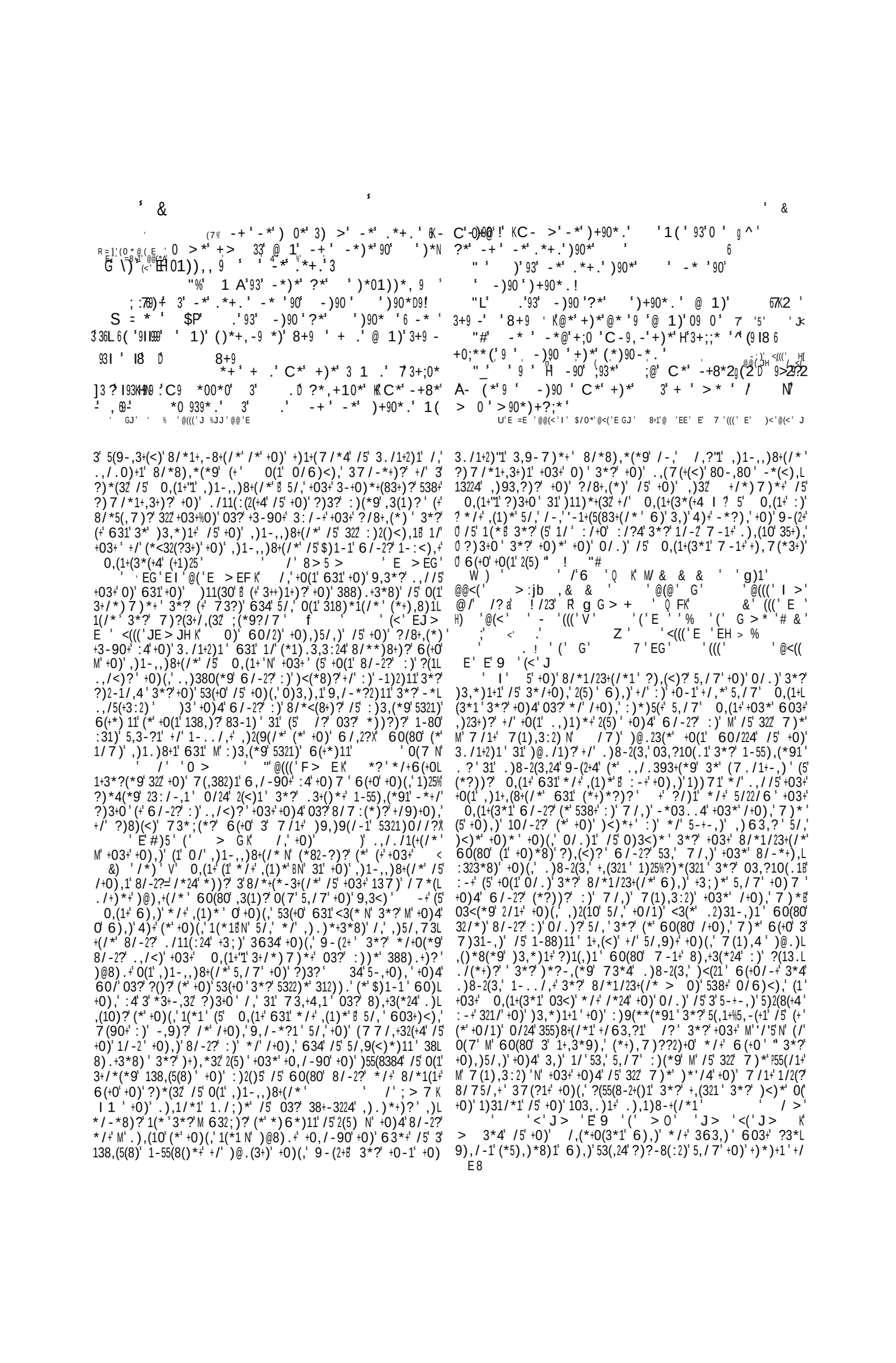
E > H

* 322 +0(*91)?(5(83+(/* 10/-2? :) 3(7)? 3+B 37:(+(/*)7-23+(/* 3*? 1)25%.,)5),)*8) 10/-2? :) 1+)3?(24 ,).,)11)?B 7)* 10/-2? :) M 16(5+ +/ 0)3, 3*? 12/6 +/ 1.)3; N 7/,) ,)3?4 +/ ,)8)(<) +03* / +/ 9(<) (*1+,-8+(/* 3*? 6(22(*9 Q-*2)11 +0) 831) ,)C-(,) +0) 8/*+,3,4 K +/ M 1.)3; M +/ +0) 71)2<)1 3*? +/ /? N 2)3<(*9 /+0),1 +/)?(54 +0) 8/*9,)93+(/* +/ :)++), 3?<3*+39) 2()* .,/5)11/,1 /5)<3*9)2(832 ?/8+,(*) 60/ (739(*) +0)71)2<)1 C-32(5()? 3*? 8322)? +/ :) +)380),1 3,) 1/ 5-22 /5 +0)(, 1-:')8+ +03+ +0)4 83**/),5,3(* 5,/7 1.)3;(*9 0/6)<), -*3?<(1)? /, (,,)L 9-23, +0)(, 8/*?-8 734 :) ((1)<(?)* +03+ +0)4 3,) 7/,) (*52-)*8)? :4 1)25%1-55(8()*84 3*? 37:(+(/* /, :4)*+0-% 1(31+(8, (7.,)11(/*1 +03* :4 0-7:2) S)32 3*? 2/<) /, +0) .(,(/5 /? 7/<)1 +0) 6(22 3*? 355)8+(/*1 (* 3 73*L *), 8/*1(1+)* 6(+0 +0))@),8(1) /5 1/:), ,)31/* 3*? ?(1L 8,)+(/* M <)* +0) 1.(,(+1 /5 +0) .,/.0)+1 6),) 1-:')8+ M +/ +0) .,/.0)+1 N 3*? ?/-:+2)11 +0(1 7-1 :) 3 2)31)C-3224 +0) 831) 6(+0 (*5),(/, +)380),1 /, M /? (1 +0) M -+0/, /5.)38) 3*? 9//?/,?), *+/ /5 8/*5-1(/* N 3*? 0) *)<), +)380)1 7)* +/ *)92)8 +0), ,)23+(<) ?-+()1 +/ 38 (* 3 73**), 60(80 (1 -*:)8/7(*9 +0), 39) 3*? 1+3+(/* /, (*8/*1(1+)* 6(+0 ?)8)*84 3*? .,/.,()+4 *?))? ,)L 1+,(8+(/*1 /5 +0(1 ;(*? 3,) */ ,)93,?)? :4 73*4 60/ +0(*; +0)71)2<)1 (77)?(3+)24 (*52-)*8)? :4 +0) .(,(/5 /? 3*? 7/,) 1.(,(+-32 3*? S)32/-1 +03* +0)(, :,)+0,) * B 4) (:)0/<)1 +0) 7 +/ 10)6 +03 +0)4 3,) 1/ :4 38;*/62)?9L (*9 +0)1) ,)9-23+(/*1 /5 +0) 3./1+2) +/ :) +0) 8/7 73*?L 7)*+1 /5 0,(1+ 3*?)@8)22)*+24 1-(+)? +/ ,)*?), +0) 6/,L 10(. 3*? 8/*?-8 /5 0(1 .)/.2) ,)1.)8+3:2) :)5/,) 7)* 3*? 0/*/-,3:2) +/ 0(7 0),)31 ?)<(3+(/*1 5,/7 +0)7 /5+) * 2)3? +/ +0/1) +0(*91 62(80 3,) (*?))? 1037)5-2 3*? 1-(+)? +/ .,)'-?(8) 7)* 1 7(*?1 393(*1 +0) 9/1.)2B 31 (5 (?(11/2<)? ,)23+(<) /:2(93+(/*1 .- 3*)*? +/ 322 ,)9-23, 1-:/,?(*3+(/* 3*? +3-90)<)* 6/7)* +/ 38 (*8/*1(1+L)*+24 6(+0 +03 7/?)1+4 60(80 (1 +0),(, .)8-2(3, /,*37)* 3*? 0/*/-, - (5 7)* 6(22 ,)73(* (9*/,3* /5 1-80 +0(*91 35+), .,/.),(*1+,-8+(/* 3*? 63,*(*9 ((1 */ 3?% <(1)3:2) +/ :) 32634 1 ?):3+(*9 6(+0 +0)7 B 6) 7-1 2)3<) +0)7 M +3;) 0))? +/ /-,1)2<)1 N 3*? 1)) ; /+0),/..,+-L *(+()1 /5 -1)5-2*)11 > /6)<), <32-3:2) 7(,38-2/-1 9(5+1 6),) (* +0) .,(7(+(<),-1),- 6) 83**/+ 6)22 ,)3? +0(1

).(1+2) 6(+0/- 80)),5-224 38C-()18(*9 (* +0) 6(22 /5 /? 31 +/ 0(1 6(+00/2?(*9 +0)7 5,/7 -1 3* 1 0)3, (1 1/ .,/*) +/ .,(?) /1+)*+3+(/* 3*? 5/224 +03)<)*)*?/6L 7)*+1 /5 +0(1 ;(*? 6),) 73?) /8831(/*1 /5 9,()</-1 1(*1 3*? /55)*8)1 -, <3(*%92/,4 (1 1-(5(82)*+24)@8(+)? :4 (*5),(/, 3*? /,?(*3,4 9(5+1 /, 3:(2(+()1 3*? +0(1 /5+)* 7(L 2(+3+)1 9,)3+24 393(*1 /-, -1)5-2*)11 3*? .)38) 3*? ,)L C-(,)1 73*4 .3(*5-2 3*? ?(1+,)11(*9 ,)7)?()1 +/ .,)<)* (+1 7/,) 53+32)55)8+1 3*? # E 9 @((>)+ -1 +0)* :) 8/*+)*+)? 6(+0 /-, .,)1)* 7)3*1 3*? 7)+0/?1 /5 (*1+,-8+(/* 2) -1)*?)3</-, +/ ?/ 322 M +0(*91 ?)8/,/-124 3*? (* /,?), N 3*? 3:/<) 32 ?)1(,) +03+ 9,38) 60(80 13*8+(5()1 3*? 0-7:2)1 +0) 1/-2 3*? 1/ .,).3,)1 (5/, 0)3<)*24 5)2(8(+4

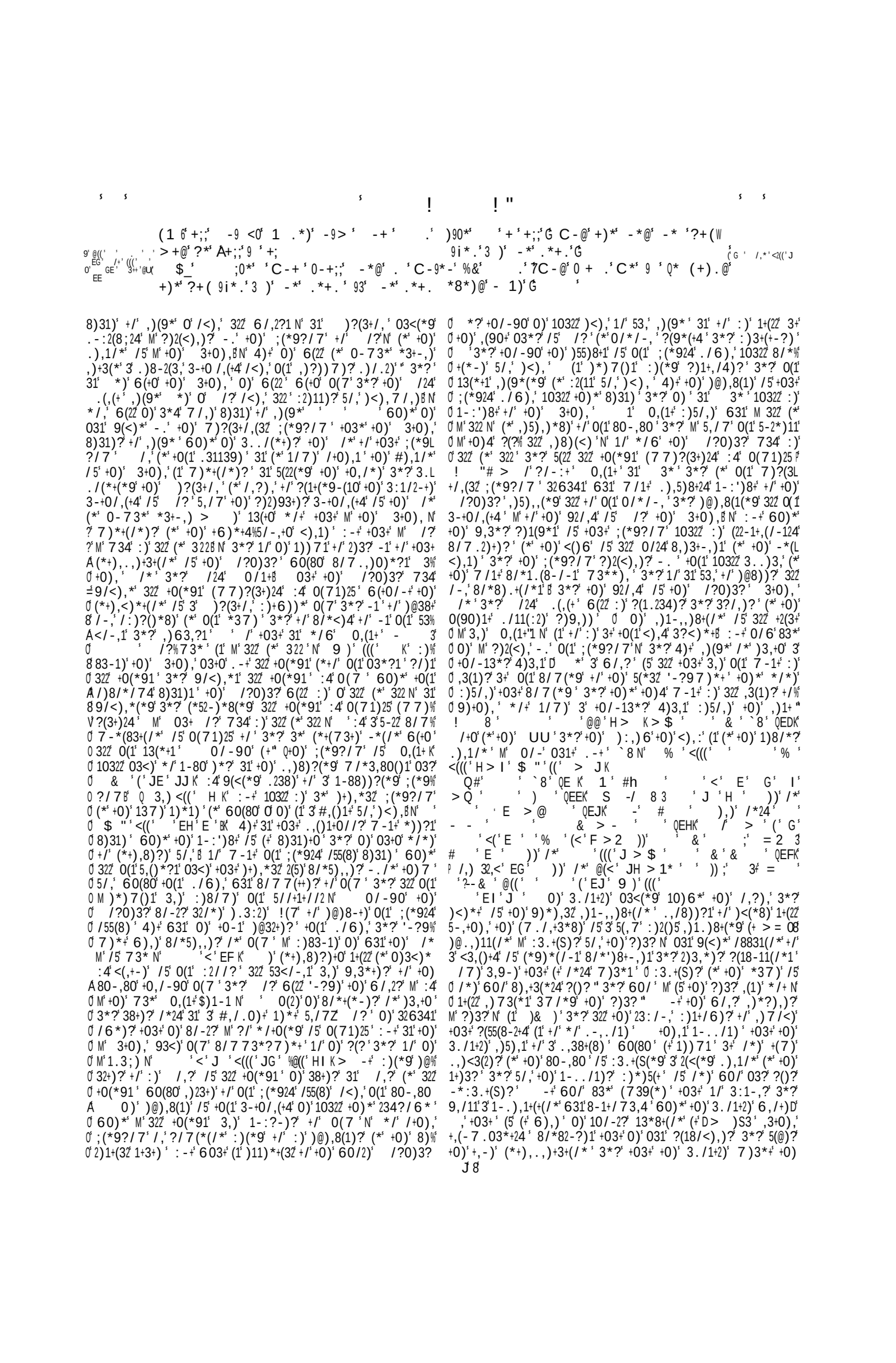
%& (U E 0)3./1+2) 0),))*+),)? /* 3*L /+0), 1-:')8+ 0) /,(*+0(3*1 6),) +(*8+-,)? 6(+0 +0) 3??-8)3* 1.(,(/5 $)6(10 18).+(8;1 /, ,3+0), 6(+0 +0) .0(2/1/.0(S(*9 +)7.), /5 +0) ,)8(3*1 60/?),(?)? +0) ?/8+,(*) 3*? ?)*()? +2() ./11(:(2(+4 /5 3 ,)1-,,)8+(/*B 1/7) /5 +0)7 321/ 73(*+3(*(*9 +03+ <(,+-) 631 (+1 /6* ,)63,? 3*? +03+ +0))@.)8+3+(/* /5 3 5-+-,) ,)8/7.)*8) 631 3 7)3* -*6/,+04 7/+(<) / +03+ 8),+3(* .),1/*1 3+ /,(*+0 :)93* +/ +)380 +03+ +0),) 6/-2? :) */,)1-,,)8L +(/* 322)9/,(S(*9 /,)@.23(*(*9 3634 603+ 03? :))* ,)<)32)? /, ?)823,)? +/ +0)7 /* +03+ 1-:')8+ E - ((H> GK + ?/)1 */+ 0/6)<), 3..)3, +03+ +0)4 ?)*()? +0) (77/,+32(+4 /5 +0) 1/-2 > * /,?), +/ 1+/. +0) .,/9,)11 /5 1/ .),*(8(/-1 3*),,/, +0) 3./1+2) :)93* :4 1+3+(*9 +0) 1-:1+3*8) /5 +0) ?/8+,(*) 60(80 0) 03? +3-90+ +0)7 62K(80 +0)4 03? ,)8)(<)? :4 53(+0 31 3 ?(<(*) +)1+(L 7/*4 (* 60(80 0) 1-../1)? +0)7 1+(22+/:)1+)?531 3*? :4 60(80 +0)4 M 6),) 13<)? N 3*? 6/-2? 8),+3(*24 :) 5(*3224 13<)? (* 831) +0)4 ,)7)7:),)? 3*? 82)3<)? +/ 603+ 0) 03? ?)2(<),)? +/ +0)7 B +0(1 +0)4 6/-2? ?/ -*2)11 +0)4 03? :)2()<)? 6(+0 3 <3(*)7.+4 3*? (*)55(8()*+ 53(+0 (* 60(80 831) +0)4 7(90+ :) 2)5+ +/)7:,38) +)*)+1 1-:L <),1(<) /5 +0) 60/2) ?/8+,(*) /5 0,(1+ E> G @(F> @(((E ((I E K + # 9 J)) /* G > ! * & # &:; - + JU++ 0; /* = 5 5 4) 0/2? 531+ +0) 6/,? 6(+0 60(80 .,)380)? +0) M 9/1.)2 -*+/ 4/-N I * ; +@_(N EE @(((H 6) 5((H (< 0(((G J> * +0) 5(,1 .238) 3*? 31 3 73++), /5 +0) 9,)3+)1 (7./,+3*8) +0) 3./1+2) 03? ?)2(<),)? +/ +0) 2(,(1+(3*1 3 /,(*+0 31 321/ +/ /+0), 80-,80)1)<)* 0,E

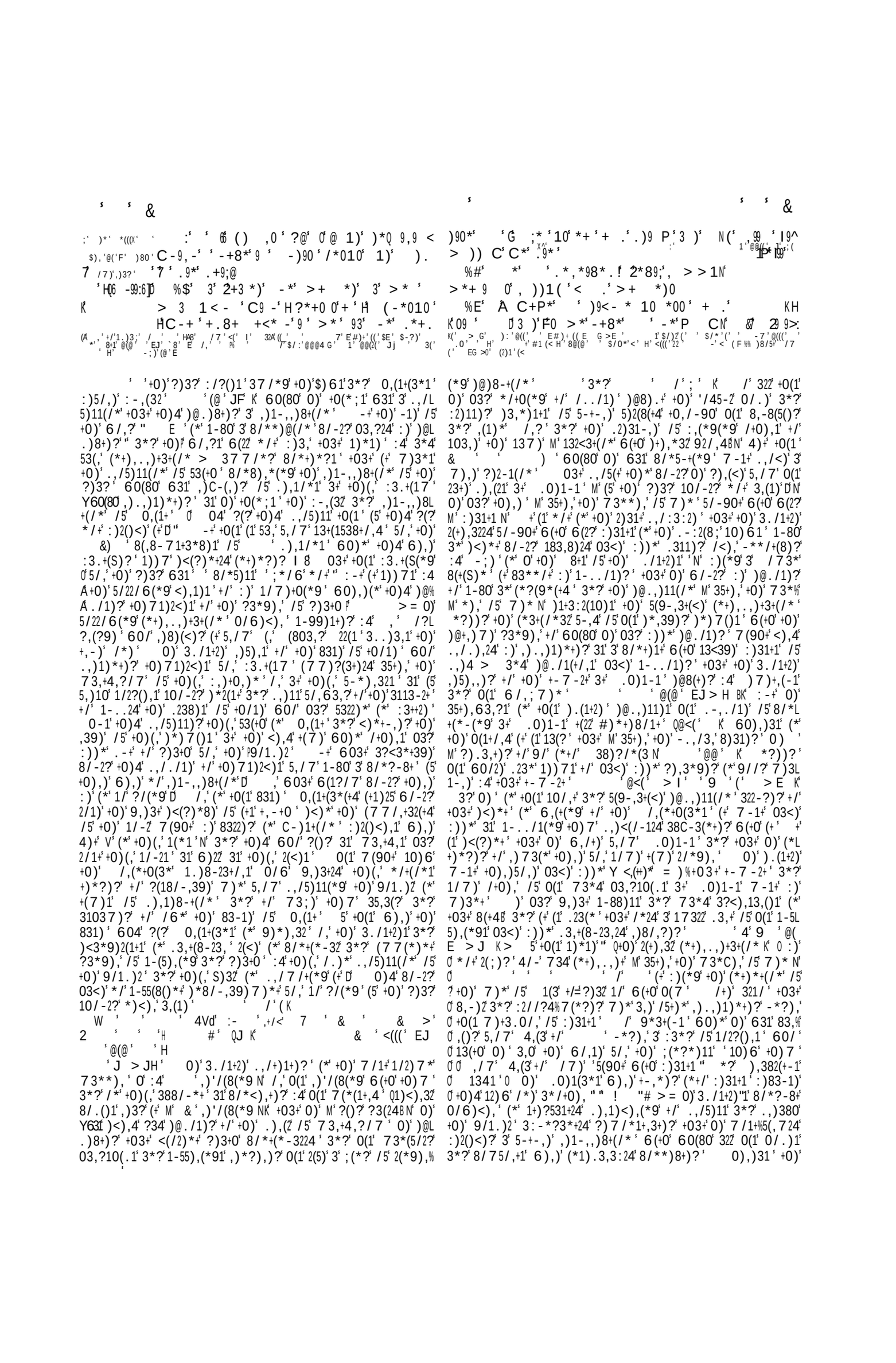


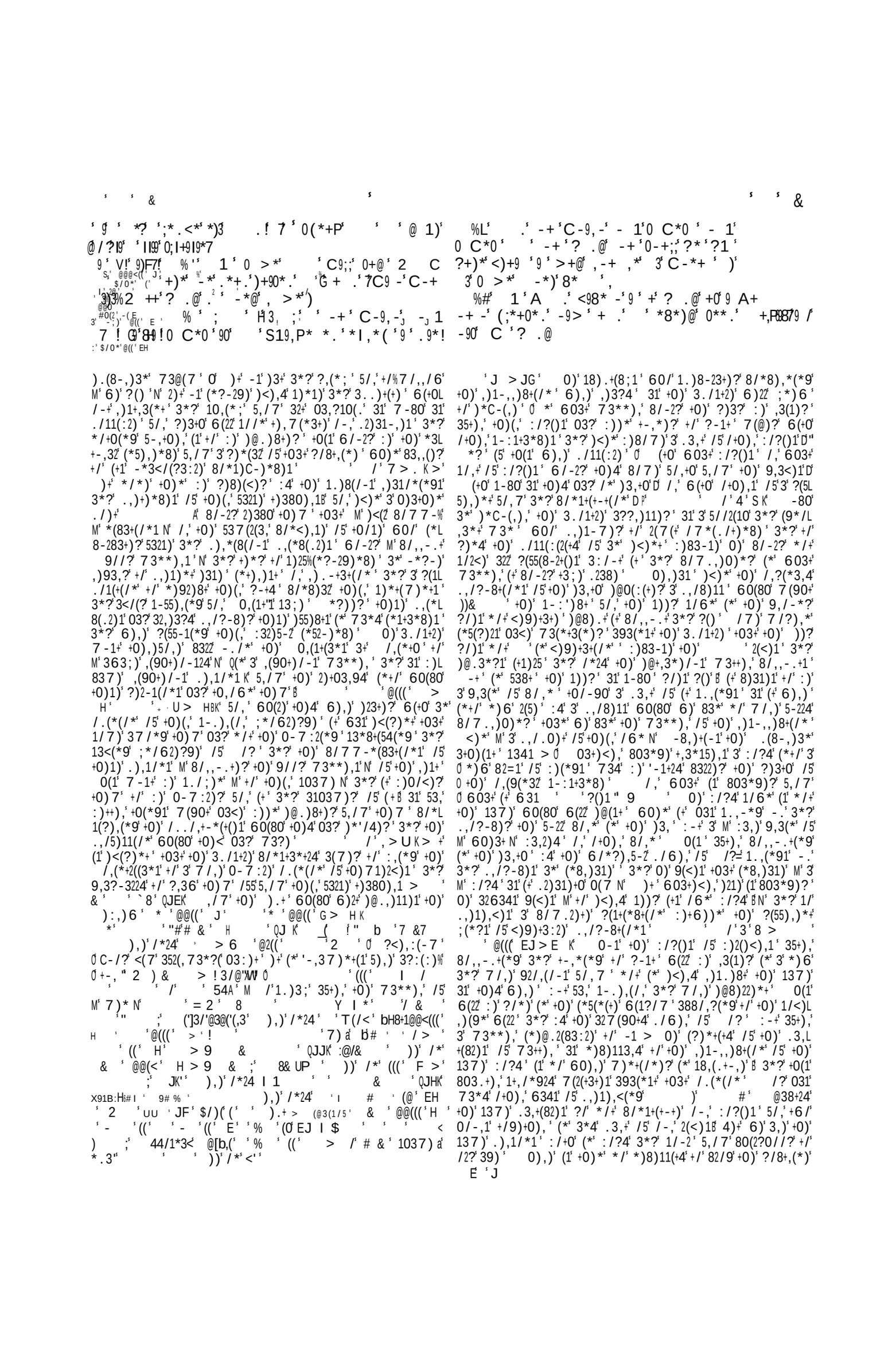


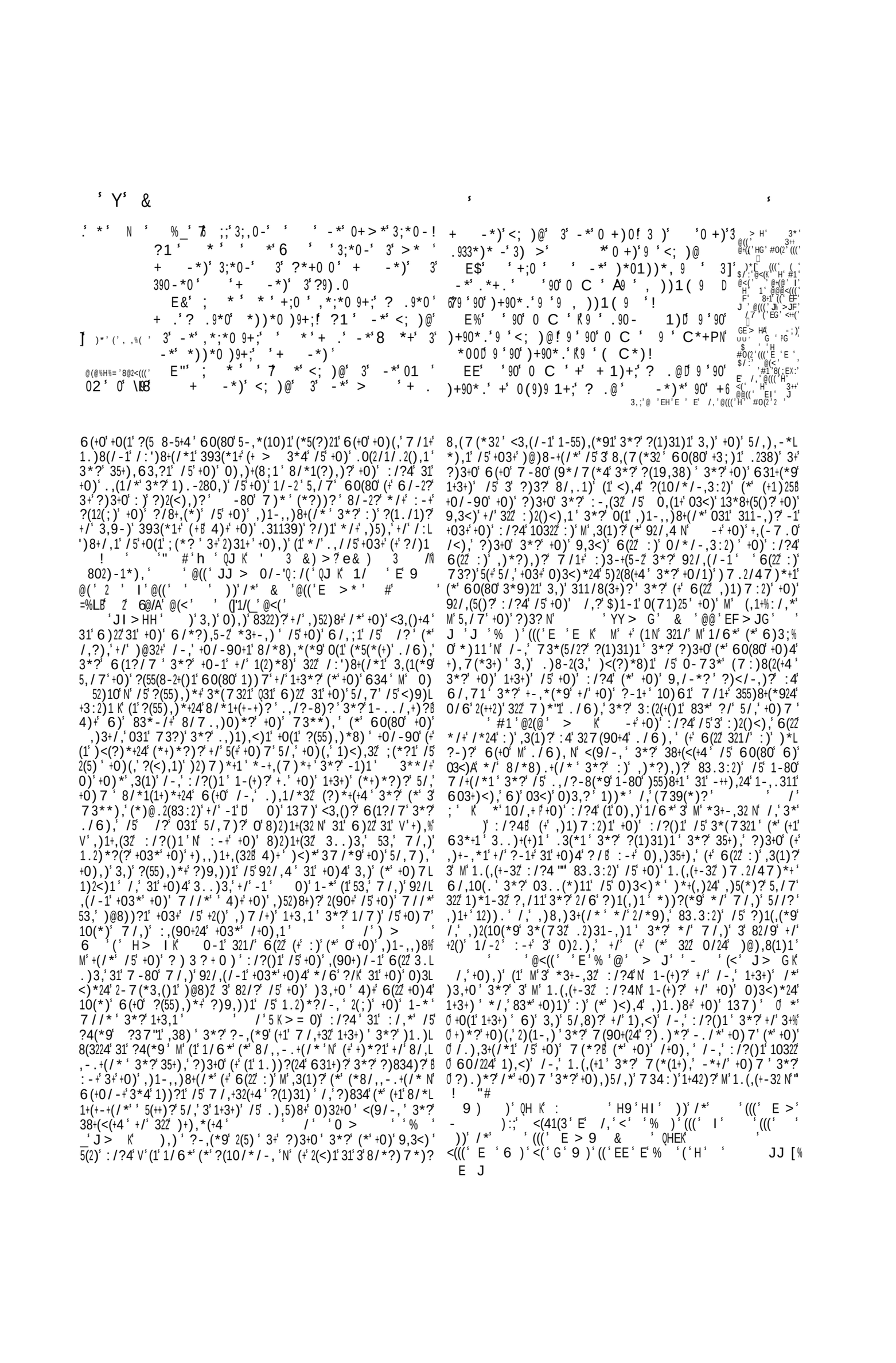
60(80 +0)4 03? 2(1+)*)? 3*? +0)(, 5321) +)380),1 6/-2? ?/-:+2)11 ?(13</6 +0)7 B 4)+ (+ 631 .,/.),-+0-1 +/)@./1) +0)7 +0+3+ +0)4 7(90+ :) .-+ -./*+0)(,9-3,?3*?*/+ .3+,/*(S)/.(*(/*1.,)9*3*+6(+0 1-80 7(180()5+/+0)1/-21 /5 7)*3*?1/?)1+,-8+(<)/5+0)3*(73+(*90/.)1 3*?8/7L 5/,+1 /5 32 :)2()<),1 ") ,: =) (((D M /1+ M .(+(3:2) N /+)21)60),) > = /= (@ J @@(((EJ E > EG 0)3./1+2) 03<(*9)1+3:2(10)?+0)/ /5 0,(1+"1 ,)1-,,)8+(/* 5,/7 +2(3+538+12()61+0)8),+3(*+4/5 /-,,)1-,,)8+(/* 3,(?+0)* 5,/7 +0) (7./,+3*+C-)1+(/*1 (* +0) +0(,+4%5(5+0 <),1) 0) +3;)1 /8831(/* +/)*23,9) /* +0) 92/,(/-1 803*9) 60(80 10322 +3;) .238) (* +0) :/?()1 /5 +0) 13(*+1 3*?5(*3224 0) +,(-7.01 /<),?)3+0 :4 +0)8/*L 1(?),3+(/* /5 3 ,)1-,,)8+(/* 3*?3 92/,(/-1 (77/,+32(+4 0(1 (1 +0) .23* /, 7)+0/?3*?+0) 8/0),)*8) /5 +0) .3,+1 (* +0(1 */:2) 803.+), > * / . . /1(+(/* +/ +0) ,,/,1 3:/<) */+(8)? +0) 3./1+2) M +)1+(5()? N 6(+0 3-+0/,(+4 31 5-(24 (*1+,-8+)? :4 (77)?(3+) ,)<)23+(/* +03+ M 0,(1 (1 M ,(1)* 5,/7 +0) ?)3? 3*?:)8/7) +0) (,1+%5,-(+1 /5 M +0/1) 60/ 12) .+N (* ?)3+0)<)* /5 322 :)2()<),1 60/ 2(3? ?()? 5,/7 +2() :)9(**(*9 3*?/5 322 60/ 10/-2? ?() +/ +0))*? /5 +0)6/,2? / > J > > H Z @((E J @@<((> J - (< > (9 K)631 +0) (,1+ 60/ 3,/1) +/ ?() */7/,) 3*? +0) 7/1+ (22-1+,(/-1 /5 322 60/)<), 10322 ?()3*? 3,(1) P)3,/1) 31 3 .-:2(8;#),1/* 31 +0) -,)+4 +0)).,)1)*+3+(<) 3*? +0) /,)%,-**), /5 0(1 13(*+1 0(1 ,)1-,,)8+(/* 631 3 .2)?9) 3*? 311-,3*8) /5 +0)(,"1 3*? 0 +0) 5(,1+%5,-(+1 "" .,)1)*+)? +/ /? +/ 13*8+(54 3*? 1)L 8-,) 0(1 :2)11(*9 -./*+0) 60/2) 03,<)1+ , 7 C > H 9) (G > E (> G K /,1(*8) :4 M 73*N 1(* 3*? ?)3+0)*+),)? (*+/ +0) 6/,2? 1/ M :4 M 3* N :4 *) (* 0-73*3+-,) M 837) +0) ,)1-,,)8% M +(/* /5 +2() ?)3? B N 3*? 31 (* 8/*1)C-)*8) /5 +0)(,,)L 23+(/* +/ ?37 322 7)* 3,) :/,* 7/,+32 3*? 3+2)*9+0 ?())<)* 1/ (* 3*? :4 0,(1+ 10322 322 :) 73?) 32(<) , @(> 9 90 <E> I K 22 7)* 6(+0/-+)@8).+(/* +0,/-90 0(1 -*?),+3;(*9 :)(*9 .238)? -*?),3 ?(1.)*13+(/* /5 7),84 10322 :),3(1)? 5,/7 +0) ?)3? +03+ +2()(,5-+-,) 1+3+) 734 :) 388/,?(*924 ?)+),L 7(*)? B 4)+ */*) 6(22 :) 5(*3224 :)*)5(+)?) @8) +0/1) 60/ 3,) /*) 6(+0 0(7 :4 53(+0 3*? +0) .3,+(8(.3+(/* /5 0(1 2(5)%9(<(*9 .(,(+ 3*? /5+0)1) +0) 3./1+2) .3,+(8-23,24 3*? 32 7/1+)@82-1(<)24 +,)3+1 (* +0(1 803.+),

EG EI K > 0(1 ,)1-,,)8+(/* 631 3../(*+)? +/ +3;) .238) (* ?-) /,?),0,(1+ 0(71)25 M +0) (,1+%5,-(+1 N 0),)35+),3+ 0(1 8/7(*9 0(1 ,)?)) 7)? .)/.2) 6(22 :),3(1)? :)5/,) /+0),1 3*? 3+ 231+ +0) 6(8;)? 6(22 3,(1) 321/ 0)* M +0) M)*? N /5 +0(1 .,)1)*+ 1+3+) /5 +0(*91 6(22 3,,(<) B 3*? +0) 1/2) 7*(+()1 /5 +0) 5(*32 '-?97)*+ :)(*9 8/*82-?)? 0,(1+ 6(22 ?)2(<),-.+2() 7)?(3+/,(32 M ;(*9?/7 +/ /?) M <)* +/ +0) 3+0),N 5,/7 60/7 0),)8)(<)? (+ 03<(*9 .,)<(/-124 0 .-+ ?/6* 322 ,-2) 3*? 322 3-+0/,(+4 3*? M ./6),N 60(80 03<) :))* .238)? (* /../1(+(/* +/ 0(1 83-1) 3*? ;(*9?/7 , /@>3K /, M 2() 7-1 M ,)(9* +(22 322)*) 7()1 N :) 1-:')8+)? +/ 0(7 31 (+ 03? :))* .,)?(8+)? 8/*8),*(*9 0(7 3*? +0) 18,(.+-,) 83**/ M :) :,/;)* N , /: > % 8@ K 5 +0)1)*)7()1 M ?)3+0 N 6(22 :) +0) 231+ 60(80 6(22 :) .-+ -*?),+0))?)) 7),"1 5)) + 62()* 0) 031 5(*3224 ?)2(L <),)? 322 0(1 .)/.2) 5,/7 +0(1 -*(<),132 8/*C-),/,3*?)*L +(,)24 3:/2(10)? 0(7 , /8> E - ($ " ((H K /,60)*(+ (1 13(? +03+ B & !'&' 031 .-+ 322 +0(*91 -*?),) +0) 5)) + /5 0,(1+ (+ (1)<(?)*+24 7)3*+ /5)) & 3*? 6(+0 3*) @8) .+(/* /5 +0) 9,)3+ ,)3+/, M 60/ .-+ 322 +0(*91 -*?),0(7 N 0-1 M 60)* M 322 +0(*91 10322 :) 1-:?-)? N +/ +0) (*83,*3+) /*3*? 60)* +0))*? /5 0(1 7)?(3+/,(32 3-+0/,(+4 10322 :) +0-1 8/7.2)+)24 3*16),)? M +2()* 10322 +0) /* 0(71)25 N 31 3* 3*?)?(3+/, :) M 1-:')8+ -*+/ (7 60/ 2(3+2 M .-+ 322 +(2(*91 -*?), 2((7 3 2 2 +0) ./6),3*? 3-+2(/,(+4 6(22 :) 38;*/62)?9)? +/ 03<) :))* /5 /? 3*? 322 +0) 0/*/-, 6(22 :),)5),,)? +0(7 0(1 3:1/2-+) ;(*9?/7 10322 +0)* 1-.),1)?) +0))?(3+/,(32 ;(*9?/7 /5 0,(1+ +03+ /? 734 :) 38;*/62)?9)? 3*? 92/,(5)? 31 M 322 (* 322 N +0) 5(,1+ 9,)3+ 3-1) 3*? +0) 231+ *? (*)<),4 +0(*9 3*? +0) :')8+ /5 -*(<),132 3?/,3+(/* 3*? /:)?()*8) / ?>9 > %) ((I > K > 0) ?(1+(*8+(/* :)L +6)) * +0) ")& -*(<),132 3*?) <),231+(*9 ;(*9?/7 /5 /? +0) /<),*/, /5 322 3*? +0) /<)*1/2-+) ;(*9?/7 8)31)? */+ +/ ,)(9* 60)* +0) 631 3?<3*8)? +/ +0) 7)?(3+/,(32 +0,/*) B 31 +03+ 3-L +0/,(+4 631 (*+)*?)? +/) *?-,) /*24 5/, 3 1)31/* (* /,?), +/ 388/7.2(10 8),+3(* (7./,+3*+)*?1 +/ +0) 92/,4 /5 /? (* 73*"1 132<3+(/* , @@<(((I <E > J K 5+), +0) 734 /5 -?97)*+ +0(1 ;(*9?/7 6(22 :) +),L 7(*3+)? B 0,(1+ 03<(*9)@)8-+)? 0(1 8/77(11(/* 6(22 J8F









3' 8+#@(' EG>J ' C H, ,*) 9 < -*, ;:*, 9 '3)' ;* ' *8*)@ *' 3 @ 1' ;+@ ?@ -9>' 9 ')')*' [<(' E'
]N , D W -* 0+9 0' +0 ' -+8* <98* ').*)' ' 0)*' A+0 # ' -+ -' () 0(*)*.' -9>' @@@((' '@@@ ('
4 ' ;I' ' -*, -1), -*0)' +;+ 9+' *8* '0 '. '@*' 6 -+ ' -*)*' ?* ' <+ -*)9 <0 C-* '
Fn 7I' N' $ (' 6 -* 39)0 ' +' 3 -* C**P , >* 39 '((' > I', 3+' 2((' I' <(((' 5'E' /,'
?' #0)7 ' >F') ; ' ' ' $/0*' @@' I E ' 8+1@@ F')< (' 2 3,;'@((' H >HH' '-<'G' -;)'@<(' ' E' /,'+(((' >J E> (@ =

., /<(?)*8)' ,)3?' -1' ?3(24' 2)8+-,)1' /5' 0-7(2(+4' 31' 6)22' 31' +)380' -1' +/' 3?7(,)' +0)' <3,()+4' /5' +0)' 9,)3+' ,)3+/,"1 6(1?/7' 3*?' 9//?*)11' (22' 6)' 83*' 5-224' 8/7.,)0)*?' +0)' 60/2)' ., /8)11' :4' 60(80' 3' :3,)' 9,3(*' 8/,,-.+(*9' (*' +0)')3,+0' ., /?-8)1' 73*4')3,1' /5' 8/,*' 3+' +0)' 03,L <)1+' 3*?' +(22' 6)' 83*' 13+(1538+/,(24' 3*16),' 322' C-)1+(/*1' 3*?' 1/2<)' 322' ?(55(8-2+()1' 3: /-+' (+' 2)+' -1' 2)3,*' +/' :)' +0)') ' 3*?' */+' 311-7)' +/' :)' +0)' &)) '/5' +0)' 7/1+' (90 3*?' 2)+' -1' 0/2?' 531+' +0)' 1-,)' 0/.)' /5' 3' 92/,(/-1' ,)1-,,)8+(/*' 6(+0/-+' .),.2)@(*9' /-,1)2<)1' 3: /-+' +0)' 73**),' (*' 60(80' (*5(*(+)' 6(1?/7' 3*?' 327(90+4' ./6),' 83*')55)8+' (+

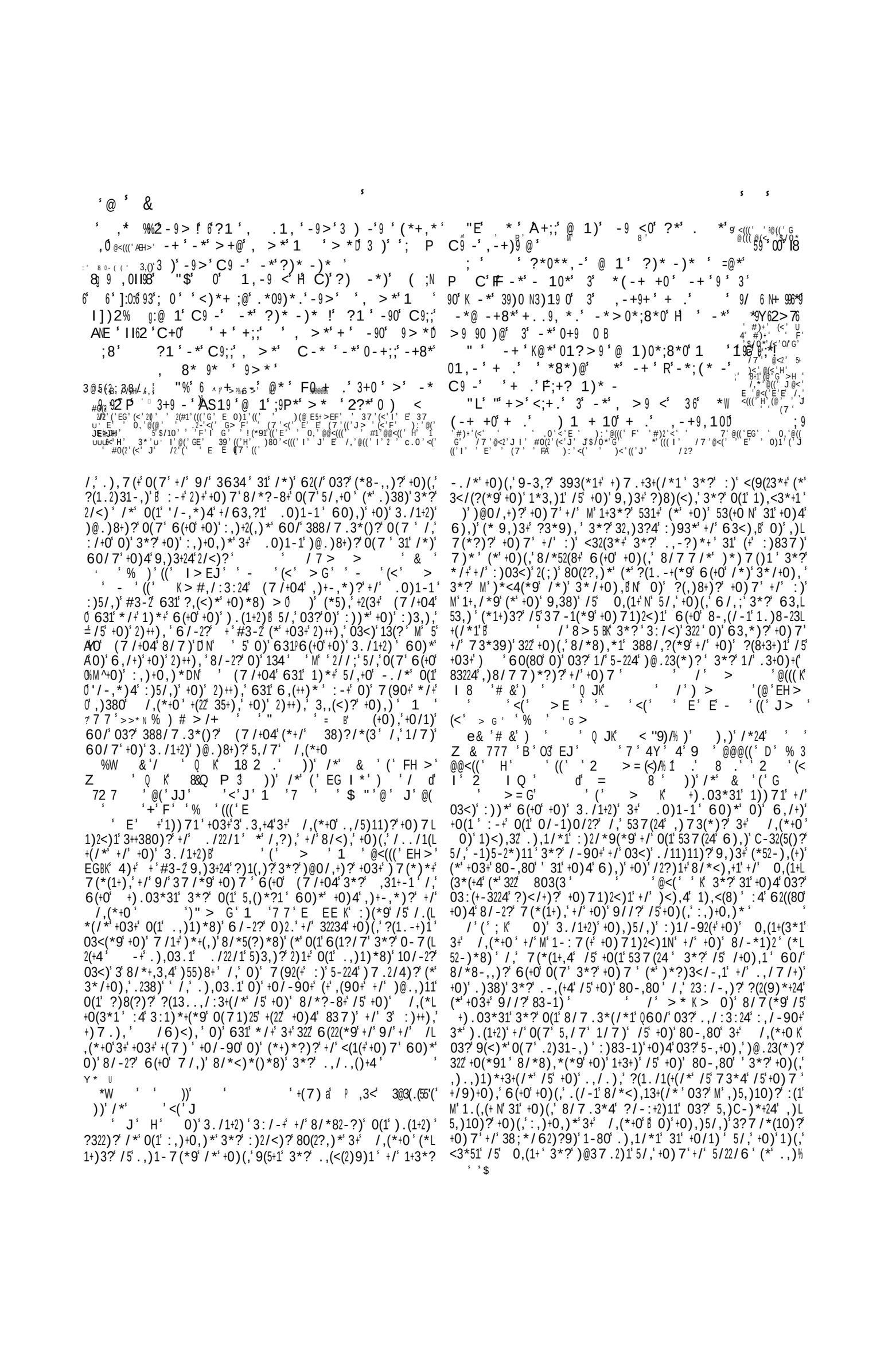
' H > G

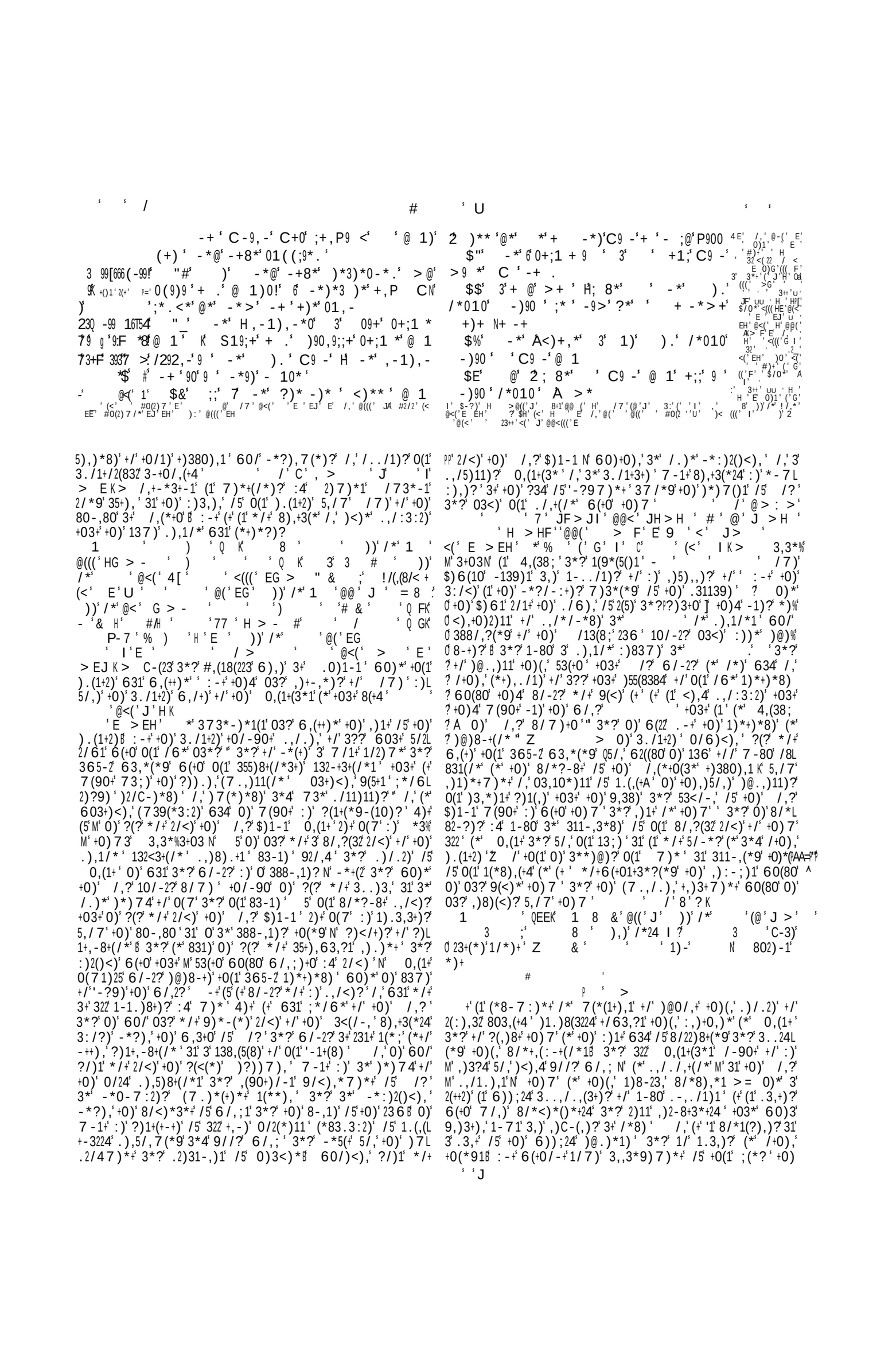
Z 0)4' 60/' M' 1032' :)' 388/-*+)?' 6/,+04' N' +/' /:+3(*' 5)2(L 8(+4' (*' +0)' 0)3<)*24' 1+3+)' 6(22')@8)' (*' 92/,4' 322' .,)1)*+' 1.2)*?/-,1' 53,' 7/,)' +03*' +0)' 8)2)1+(32 :/?()1' +,3*18)*?' +0)' +),,)1+,(32 3*?' 4)+' +0)4' 1032')@8))?' /*)' 3*/+0),' (*' 92/,4' 31' M' /*)' 1+3,' ?(55),)+0' 5,/7' 3*/+0),' N' 60(2)' 0,(1+' M' +2()' -*' /5' (90+)/-1*)11 N' 1032' (*5(*(+)24' /-+10(*)' +0)7' 322' 0(1' ?)9,3?)?' (*8/,,-.+(:2)' 1(*5-2' 3*?' ?4(*9' :/?4' 1032' :)' ,3(1)?' M' (*8/,,-.+(:2)' (77/,+32' 3*?' 92/,(% M' /-1 N' (+ 1032' :)8/7)' <(9/,/-1' 38+(<)' 3*?' :)3-+(5-2' :)4/*?' 8/*8).+(/* 0(1')' :/?4' 1032' :)' ,3(1)?' 3' &)'),)' /-,' <),4' 1/-21' 3,)')(+0),)' /-,' <),4' :/?()1' 6(22' :)' &)' *?' /-,' M 1)8/*?' ?3*(' +0)' 0' /,?' 5,/7' 0)3<)* N' 6(22' 9(<)' *)6' 3*?' (77/,+32' 2(5)' 31' M' 3' C-(8;)*(*9' .(,(+ N' :/+0' +/' /-,' 1/-21' 3*?' :/?()1' +03+' (*' :/+0' 388/,?(*9' +/' /-,' 7)31-,)' 6)' 734' :)3,' 0(1' (739) 3*?' 92/,(54' 0(1' *37) >= 1 M' 52)10' 3*?' :2//?' 83**/+' (* M' /-1 N' (+ 1032' :)8/7)' <(9/,/-1' 38+(<)' 3*?' :)3-+(5-2' :)4/*?' 8/*8).+(/*B +0(1')' :/?4' 1032' :)' ,3(1)?' 3' &)'),)' /-,' <),4' 1/-21' 3,)')(+0),)' /-,' <),4' :/?()1' 6(22' :)' &)' *?' /-,' M 1)8/*?' ?3*(' +0)' 0' /,?' 5,/7' 0)3<)* N' 6(22' 9(<)' *)6' 3*?' (77/,+32' 2(5)' 31' M' 3' C-(8;)*(*9' .(,(+ N' :/+0' +/' /-,' 1/-21' 3*?' :/?()1' +03+' (*' :/+0' 388/,?(*9' +/' /-,' 7)31-,)' 6)' 734' :)3,' 0(1' (739) 3*?' 92/,(54' 0(1' *37) >= 1 M' 52)10' 3*?' :2//?' 83**/+' (* M' 0),)' (1' +04' 1+(*9' D' 9,3<)' 60),)' (1' +04' <(8+/,4' D N' +03+' 6)' 734' 03(2' +0)' 103,.)1' .3*91' /5' ?4(*9' 3*?' +0(*;' 6(+0/-+')7/+(/*' /*' +0)' ?3,;*)11' +0)' 8/,,-.+(/*' 3*?' +0)' (739(*3,4' 0/,,/,1' /5' +0)' +/7' B 311-,)?' +03+' +0),)' /-,' :/?()1' 6(22' 12)).' 3+')31)' +03+' (*' +0)' 7)3*' +(7)' /-,' 1/-21' 6(22' :)' .,)1)*+' 6(+0' /-,' :)2/<)?')?))7),' 3*?' +03+' /-,' :/?()1' 6(22' 10/,+24' 3,(1)' +/' 103,)' +03+' -*1.)3;3:2)' 5)2(8(+4' > -+' M' 1(*' (1' +0)' 1+(*9' /5' ?)3+0' N' 3*?' 60/' 83*' ?(13,7' +03+' M' ;(*9' /5' +),,/,1DN' /,' M' +0)' 236' (1' +0)' 1+,)*9+0' /5' M' 1(*' N' 3*?' 60/' 83*' 3*16),' (+1' ?)73*?1')*?-,)' (+1' 8-,1)' /,')@.(3+)' 0(1' /6*' +,3*19,)11(/*1' D)*8)' +0)' +),,/,' 3*?' +0)' 3*9-(10 0)*8)' +0)' 6,)+80)?' 82)3<)' +/' 2(5)' 13<)' 60)*' (*5(?)2(+4' ?)1.3(,' 3*?Z,)' :)22(/*' (*?-8)' 73*?*)11' 3*?' 1-(8(?)')*8)' ?)3+0' (1' -1+24' +),,(:2)' +/' +0)' -*:)2()<(*9' 3*?' (7.)*(+)*+B 0)*8)' +0)' *))?2)11' 323,71' /5' +0)' 6)3;' 3*?' +,)7:2(*9' :)2()<),' M' 03*;1' :)' +/' /?' N' +03+' 0),)' (1' ?)2(<),3*8)' 3*?' <(8+/,4' 5/,' -1' (*' 0,(1+$)1-1X

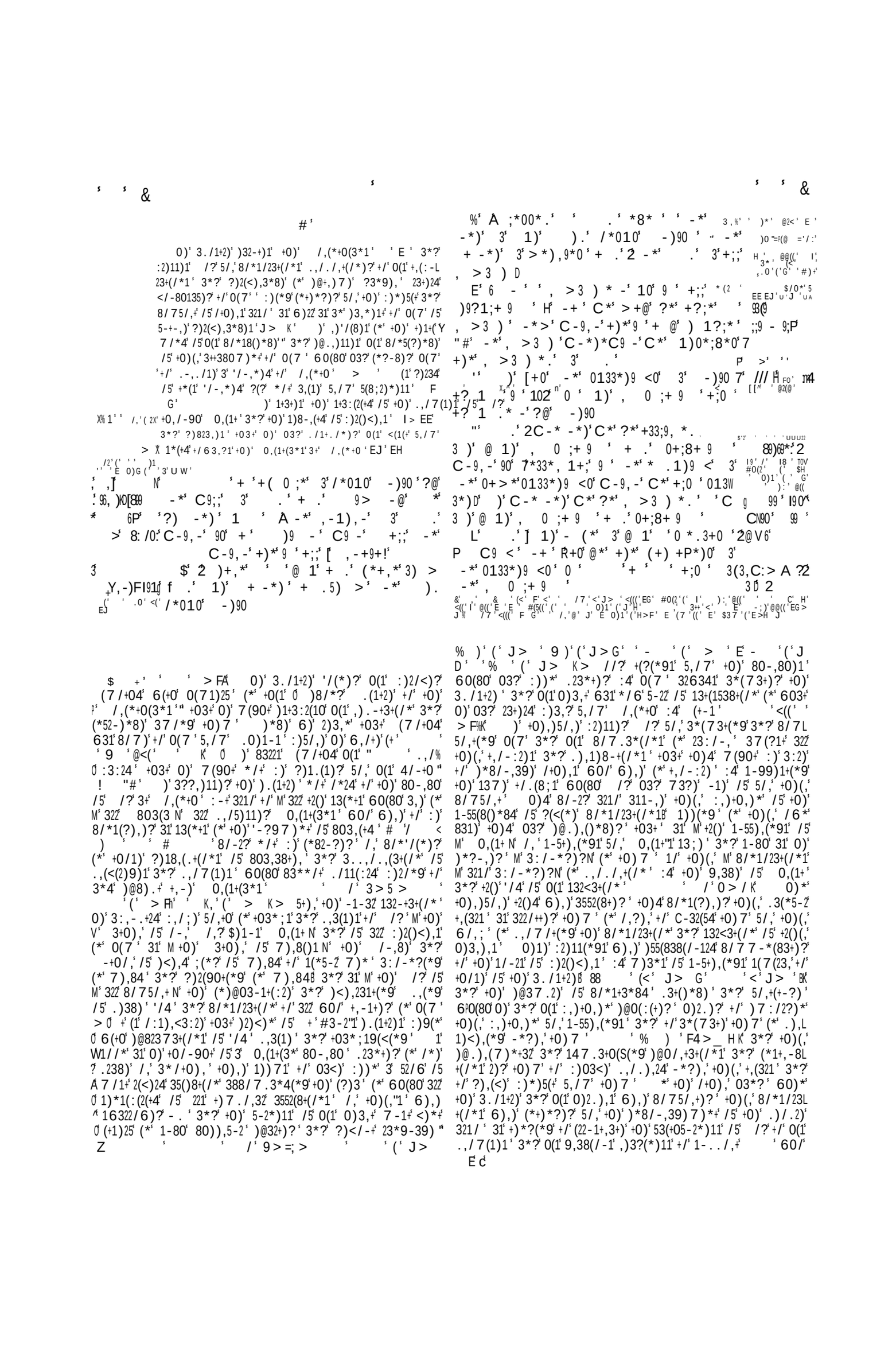
' <((' 44 > E K' 34' 0)' 9(<)' -1' 53(+0' 3*?' 0/.)' 3*?' (*8,)31)' /-,' 53(+0' 3*?' 0/.)' +03+' 6)' 734*/+' /*24' :)' 135)' :-+' '/45-2' 3*?' +,(-7.03*+X *?' 03<(*9' +0)1)' 311-,3*8)1' 2)+' M' -1' :)' 1+)?531+' -*7/<)3:2)' 32 6341' 3:/-*?(*9' (*' M' +0)' 6/,;' /5' +0)' /,?' 31' ;*/6(*9' +03+' /-,' 23:/-,' (1' M' */+' (*' <3(*' (*' +0)' /,? N' ' ' ' (((' > J K

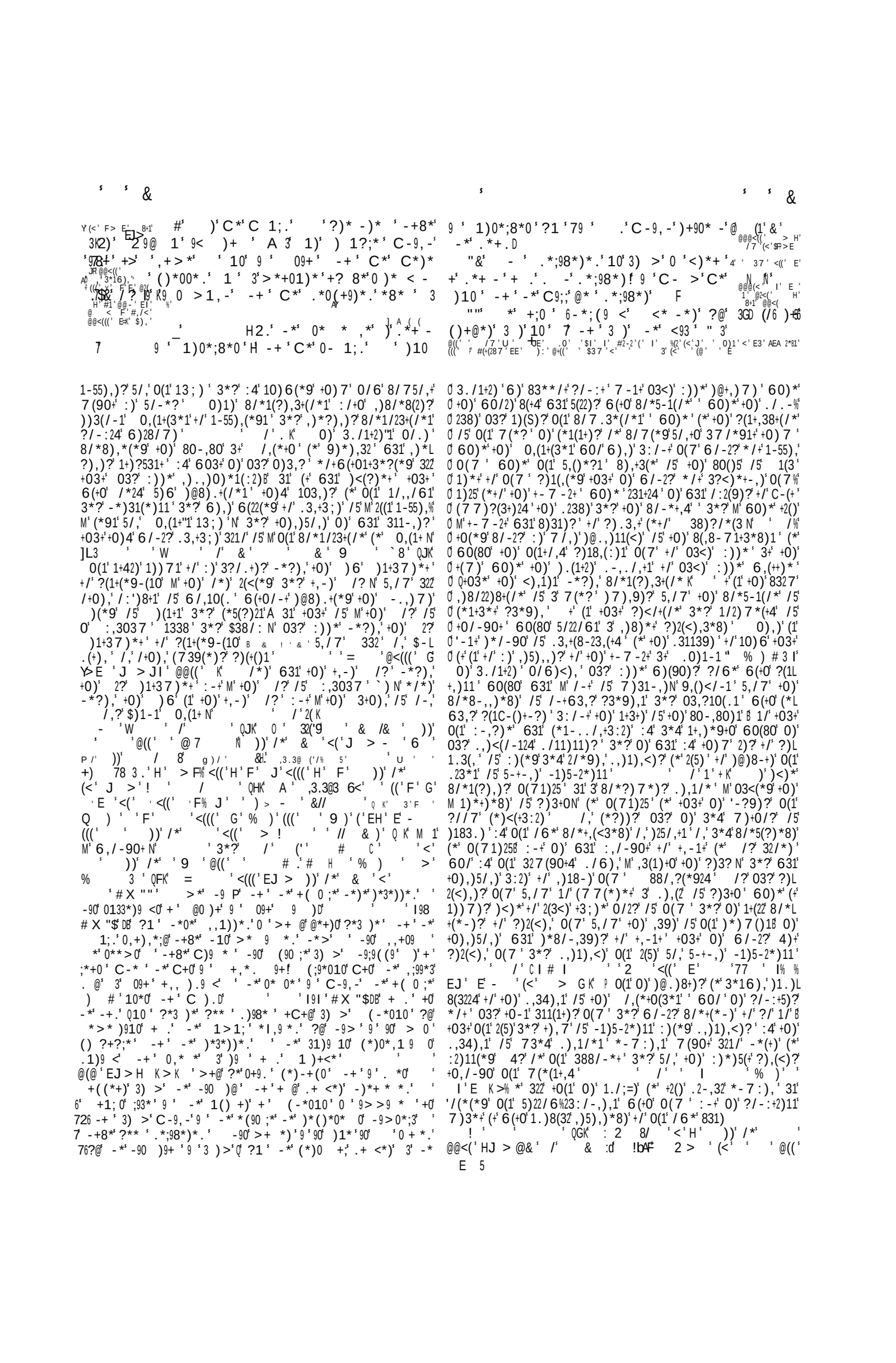
%&' (' U ' ' ' E' +' (1')<(?)*+' +03+' +0)' /L ,(*+0(3*1' 03?' :))*' .,)<(/-124' 73?)' 38C-3(*+)?' 6(+0' +0)' 3./1+2)"1' (*+)*+(/*' /5',3(1(*9' 3' 8/*+,(:-+(/*5,/7' +0)' 58*% +(2)' 80-,80)1' 5/,' +0)' ./!,' 0,(1+(3*1' (*' $-?)3 3*?' 31' +0)4' 6),)' 7/,)' 6)32+04' +03*' 7/1+/5' +0)(,' :,)+0,)*' 0)' ?(?' */+' (*+(73+)')<)*' 3' ?/-:+' /5' +0)(,' 2(:),32(+4' (*' +03+' 9//?' 6/,;' -+' 0)' '-?9)?' (+' ./.),' +/' ./(*+/-+'+/' +0)' 7)' +0)' 7)+0/?' 3:/-+' 60(80' 0)' 03?' 9(<)*' /,?),1' (*' +0)' 80-,80)1' /5' 323+(3' 60)*8)' 0)' 03?' 23+)24' 8/7)' ' /' 3>8 > ' 1 ' @<(((' G>EJ' @@(<' >E ' ' U ' EE>EI' E' 9 ' <(((' (@ K' M' *' +0)' 5(,1+' ?34' /5' M' +0)' 6)); N' 2)+')<),4' 73*+,)31-,)' -.' 3' .,/./,+(/*' /5' 0(1' 93(*1' 388/,?(*9' 31' /?' 03?' ./1.),)?' 0(7' ?-,(*9' +0)' .,)8)?(*9' 6))); B 5/,' +0-1' 3' 23,9),' 1-7' 6/-2?' 9,3?-3224' :)' ./<(?)?' +03*' 8/-2?' 3+' /*8)' 03<)' :))*' 8/22)8+)?' ' /'?>5 K> /7)' 3,)' /5' /.(*(/*' +03+' +0)' 1-71' +0-1' 1)+' 3.3,+' 6),)' :,/-90+' +/' +0)' +,)31-,4' /5' +0)' 80-,80' 3+' +0)' +(7)B :-+' +0)' 6/,?1' ?/' */+' 1))7' +/' 3?7(+' /5' +03+' (*+),,.,)+3+(/*' 3*?' (5')380' 1).3,3+)24' 23(?' :4' +0)' 1-7' 60(80' 0)' .-,./1)?' +/' 9(<)' +0)' 60/2)' 6/-2?' :)' :,/-90+' +/9)+0),' 3+' /*8)' 60)*' *)8)113,4' 6(+0/-+' 3*4' +,/-:2)' (*' 1/2(8(+(*9' 8/*+,(:-+(/*1 I ?' O' 34(*9' (+' .' 31' 3' +,)31-,)' B N' O' ,' +0)1)' 3,)' +0)' +,-)' ,(80)1' 23(?' .' (*' 0)3<)*')*% O' +,-1+)?' +/' /?' +/' :)' 8/7.)*13+)?' 6(+0' +0)' 37.2)1+' O' (*+),)1+' :/+0' (*' +0(1' 6/,2?' 3*?' +0)' *)@+' +0/-90' */+' /5' O' +0)(,' /6*' <32-)' :-+' /5' 0(1' 7),)' 2(:),32(+4" Q E >' /,2?24' 7)*' 3+' 8),+3(*' +(7)1' 3-97)*+' +0)' +,)31-,)' 60(80' +0)4' 03<)' :)5/,)' 23(?' -.' :4' 3??(*9' +0)(,' 82)3,' 93(*1' +/' (+B 2)+' 0,(1+(3*1' +0B)*' (7(+3+)' +0)7' :4' 234(*9' -.' /*' +0)' /,?"1' ?34' 5/,' +0)(,' ./.),)?' +0),)*' 38L 8/,?(*9' M' 31' /?' 03?' ./1.),)?' +0)7' N' 3*?' 2)+' +0)7' 8/-*+' +0(1' +,)31-,)' ' 5' +0(1' 631' ;).+' 3.3,+' :4')382(' .),1/*' +(22' 63*+)?' 1/+03+' */*)' ;*)6' 603+' /+0),1' 93<)' /1+)*+3+(/*' 3*?' 8/,,-.+)7-23+(/*' 6/-2?' :)' 53,' 7/,)')55)8L +-3224')@82-?)?' +03*' (5')380' :,/-90+' 0(1' 8/*+,(:-+(/*' +/' +0)' 8/77/*' 1+/8;*)<),4' 6))' 3*?' 1/' 3' .-:2(8;' 388/-*+' 631' +3;)*' /5' (+' +' 631')1.)8(3224' *))?5-2' +03+' +0(1' .,)L 83-+(/*' 10/-2?' :)' +3;)*' 3+' /,(*+0' 60),)' /1+)*+3+(/*' 3*?')7-23+(/*' 9,)3+24' .,)<3(2)?B' 3*?' (+' (1')<(?)*+' +03+' +0)' 3./1+2)' (*+)*?)?' 31' 7-80' 31' ./11(:2)' +/' 2)3<)')<),4' /*)' (*' +0(1' ,)1.)8+' +/' ?)+),7(*)' 5/,' 0(.(1)25' :)5/,)' /?' 603+' 0)' /-90+' +/' ?/' +03+' */*)' 7(90+' 9(<)' 7/,)' +03*' 0)' 8/-2?' .,/.),24' 1.3,)' /,' +03*' 0)' 631' 5,/7' .,/.),)' 7/+(<)1' (*82(*)?' +/')(+0),' +/' 38C-(,)' 3..23-1)' /,' ++5')183.)' 8)*1-,)' 3*?' 8/*+)7.+ >= 0)' 3,9-7)*+' 5,/7' +0(1' .31139)' 5/,' +0)' /:%" 1),<3*8)' /5' +0)' 5(,1+' ?34' /5' +0)' 6));' 31' M' +0)' /,?"1' ?34 N' +0)' 0,(1+(3*' 13::3+0' (1' <),4' 8/*82-1(<)B 5/,' -*2)11' +03+

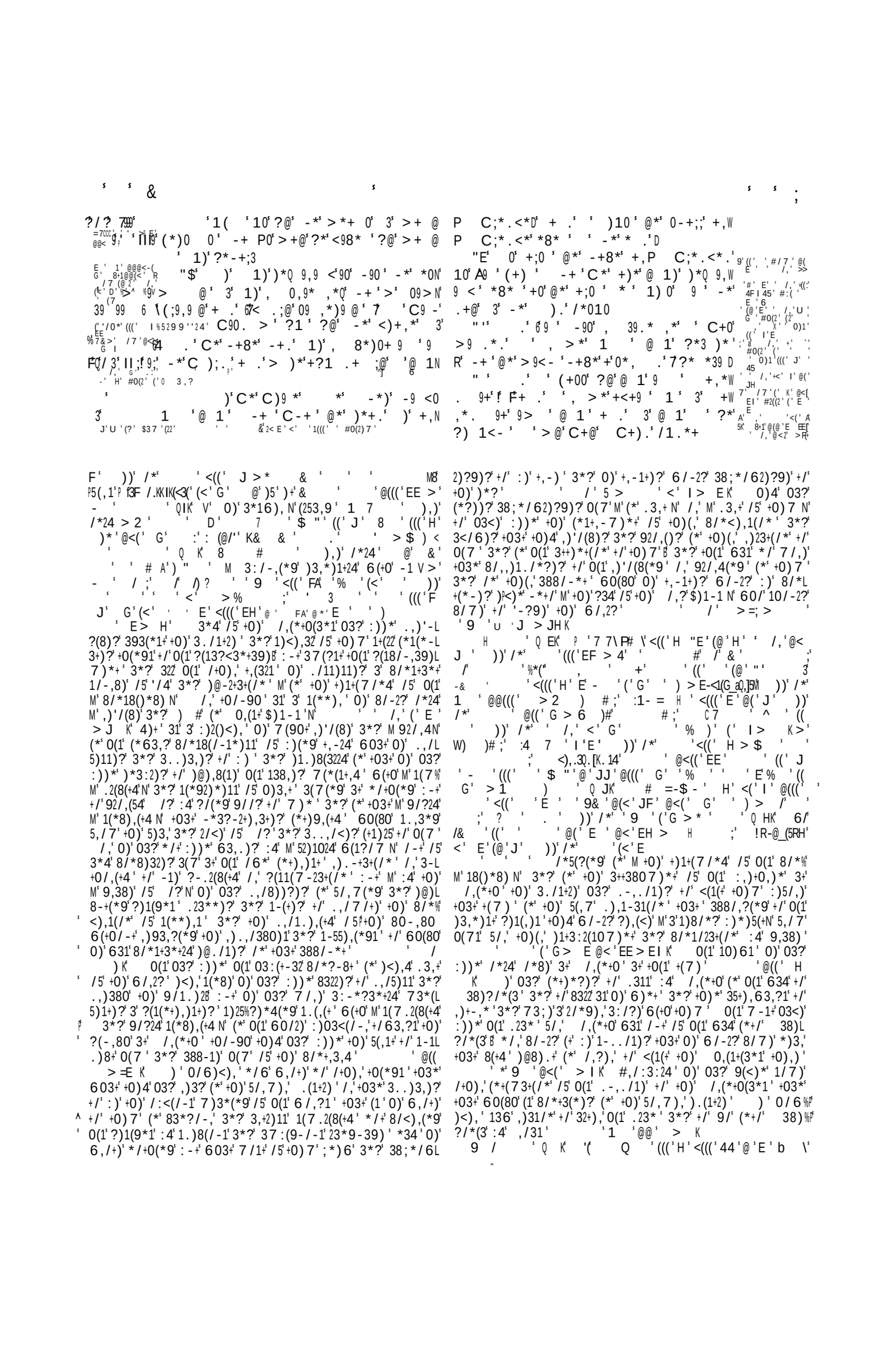
E' +K G

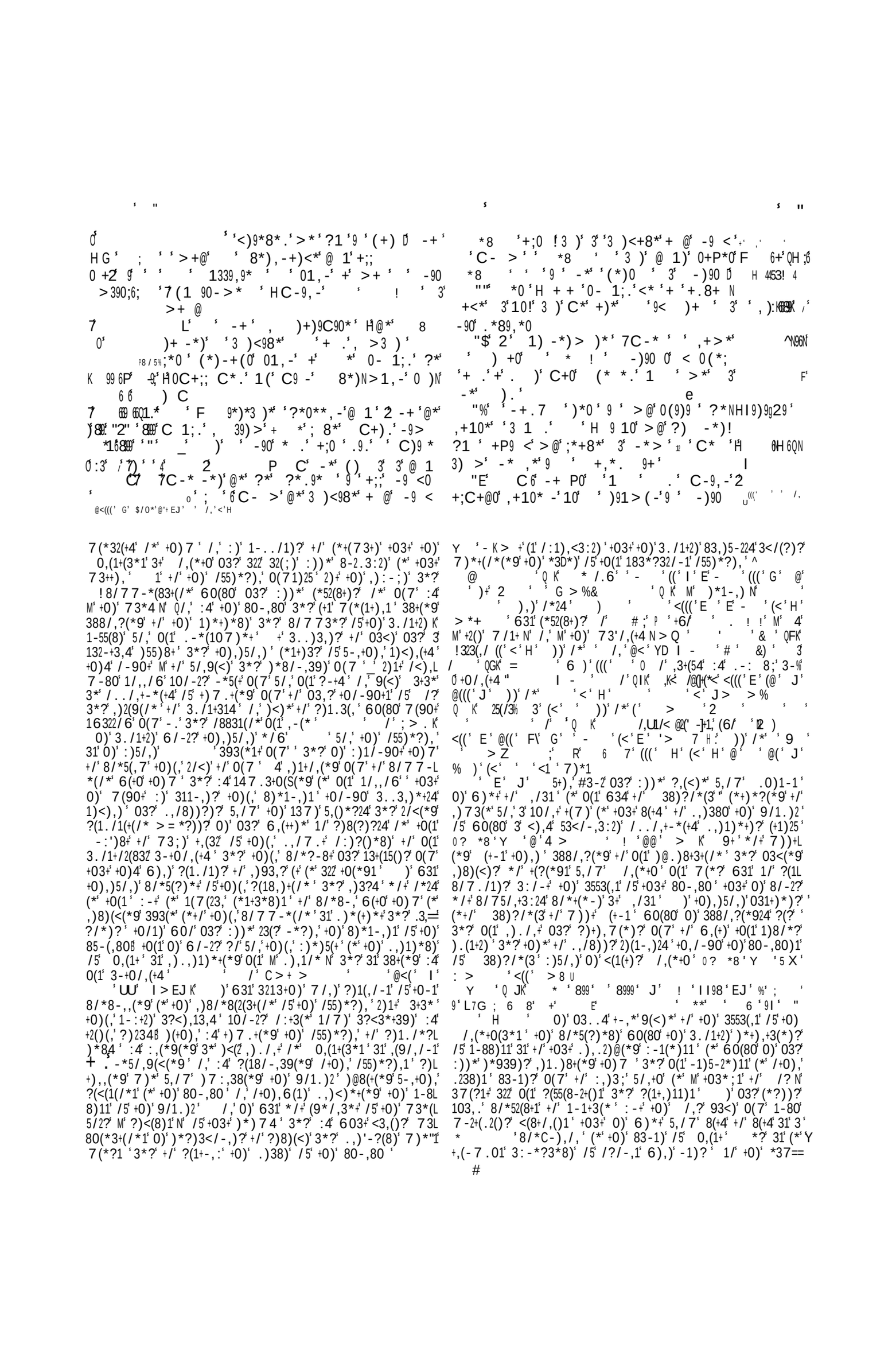


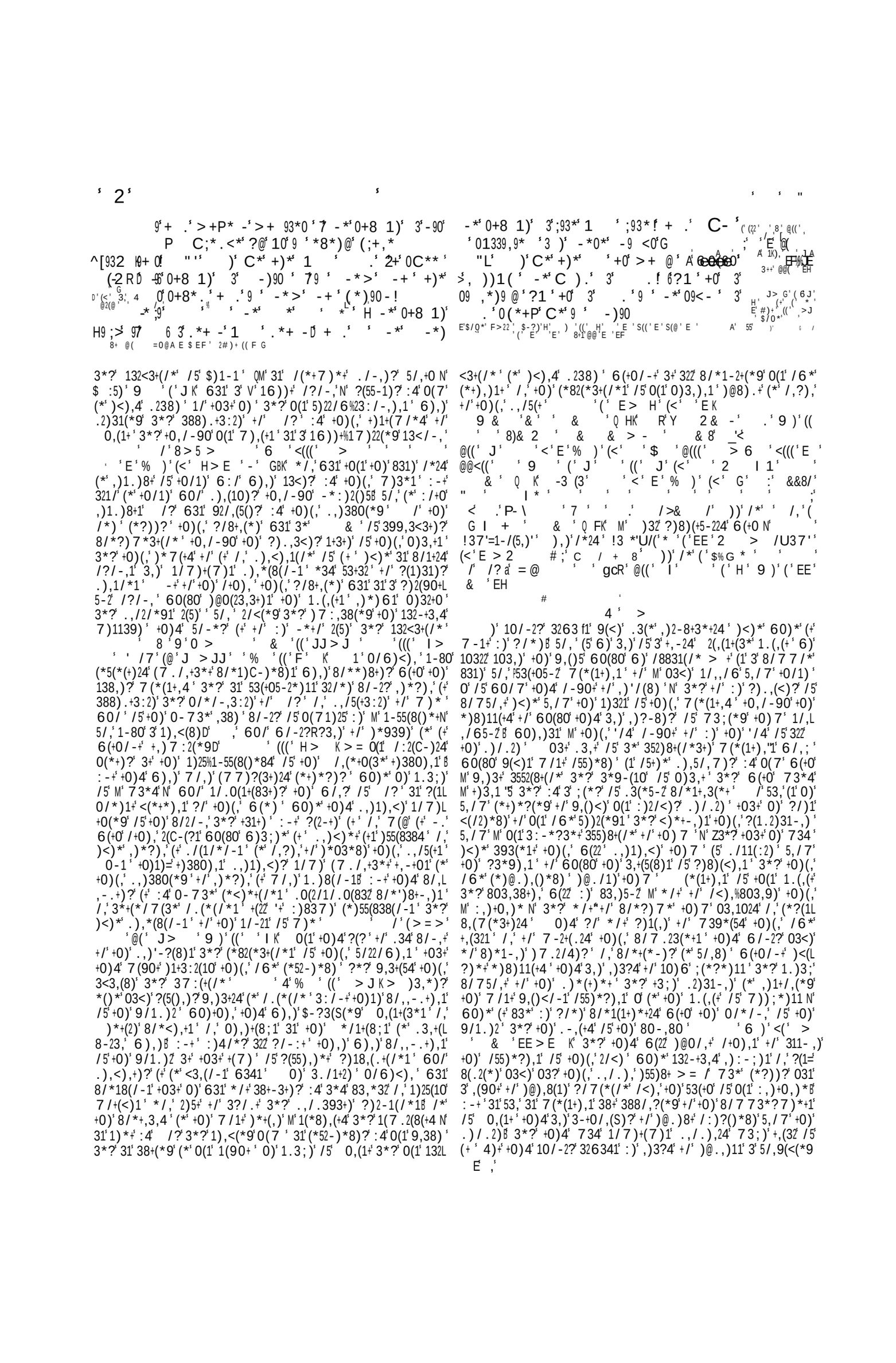












#' 9

/' / : <(3+)' +0)' 803,9)' / 5' 1)25' 8 / 7 7) * ?3+(/ * \' +0)' 3 . / 1+2)' 10) 6 1 ' +03+' +0)' 8 / * <), 1(/ *' / 5' +0)' / ,(*+0(3 * 1' 6 31' =' 1 - 55(8() * +' 3++)1+3+(/ *' / 5' 0,(1+' 9(<) *' +/ ' 0(1' 7 (L *(1+,4 ' > J ')' 318,(:)1' 322' 0(1' 1 - 55(8() * 84' 3 * ?' 1 - 8L 8)11' +/' / ? ' H ' '" 3 * ?' 10) 6 1' +0)' 92 /, 4' / 5' +0)' 9 / 1.) ?' +/ ' :)' 1 - .),(/ ,' +/ ' +03+' / 5' +0)' 236 ' > 8 ?) 823,(* 9' +03+' 0(1' . 23(*' 1.) 3 ; (* 9' 388 /, ?) ?' +/ ' +0)' * 3 + - ,' / 5' 0(1' 7 (*(1++4 ' 6 0(80' 6 31' 2)11' / : 18 - ,)' +03 * ' +03+' / 5' / 1)1 ' > H' '" 1+3+(* 9' +0)' : 2(*?*) 11' / 5' +0)' $) 6 1 ' 6 0(80' 6 / - 2?' :)' ,) 7 / <) ?' 6 0) * ' +0) 4' + - ,*) ?' +/ ' +0)' / ,? ' ' 2 ' 3 * ?' ?) 18,(: (* 9' +0)' 2(:), +4' 3 * ?' . , 9,) 11(<)' 0 / 2(L *) 11 ' 6 0(80' 3, / 1)' 5, / 7 ' 53(+0' (* ' 0, (1+ ' 3 * ?' +0)' (22 - L 7 (* 3+(/ * ' / 5' +0)' / 24' . (,(+ ' F ' G

C*' 7?*<9 ' +<+9 ' ' , > > * .] ' ' ^' > 0*;8*0' G)' **.' C*' +0' 0 > *' * ' ;+' 9,)>' ; ' 6 7*(90 ;*0' 3' , > > * . + 9 ' ' @ 1 ')' Y 8+1' @<(((' L * ' 3', > > * . + 9 ' 3) > ' @ 1' G]á ,9) 7 6 1' K; ' *' A+)*' 1)' * (90 ;*' C)9 * ' 9 ' Q 7 0 4 7 6 0 1)' -*+) 0' 7P ` ' + .')*+.' 3' +;;632 6 QD' ' 2 ^0

%' V * ! ' ' + ' * ' > + 93*0 ;@' ^' ;' ((' 3' E 7 0 4 B .*,;+)*.' ' ?*' 6 - *' * (90 ;*' 3' -)90 ' ' A> 9 90 *) *.' ?@' 10' C)9 * ' ' C9 -' +0 9 P' ?1 ' C9 -' -*' (9)9' 3' ' -*' ;989 <' .D' 6 ' 9 ' +?;*0' 3' 0 *' K6?1 ' 9 ' 3;*0 - ;@' +?;*0' 3' - *' - *+) ' K ;, 9 8 7 7 6 6 ; # 1 @ G ' $), @@@(JJ ' S' @2' I' @@@<('E > EF'):' .,2(2' ' @'

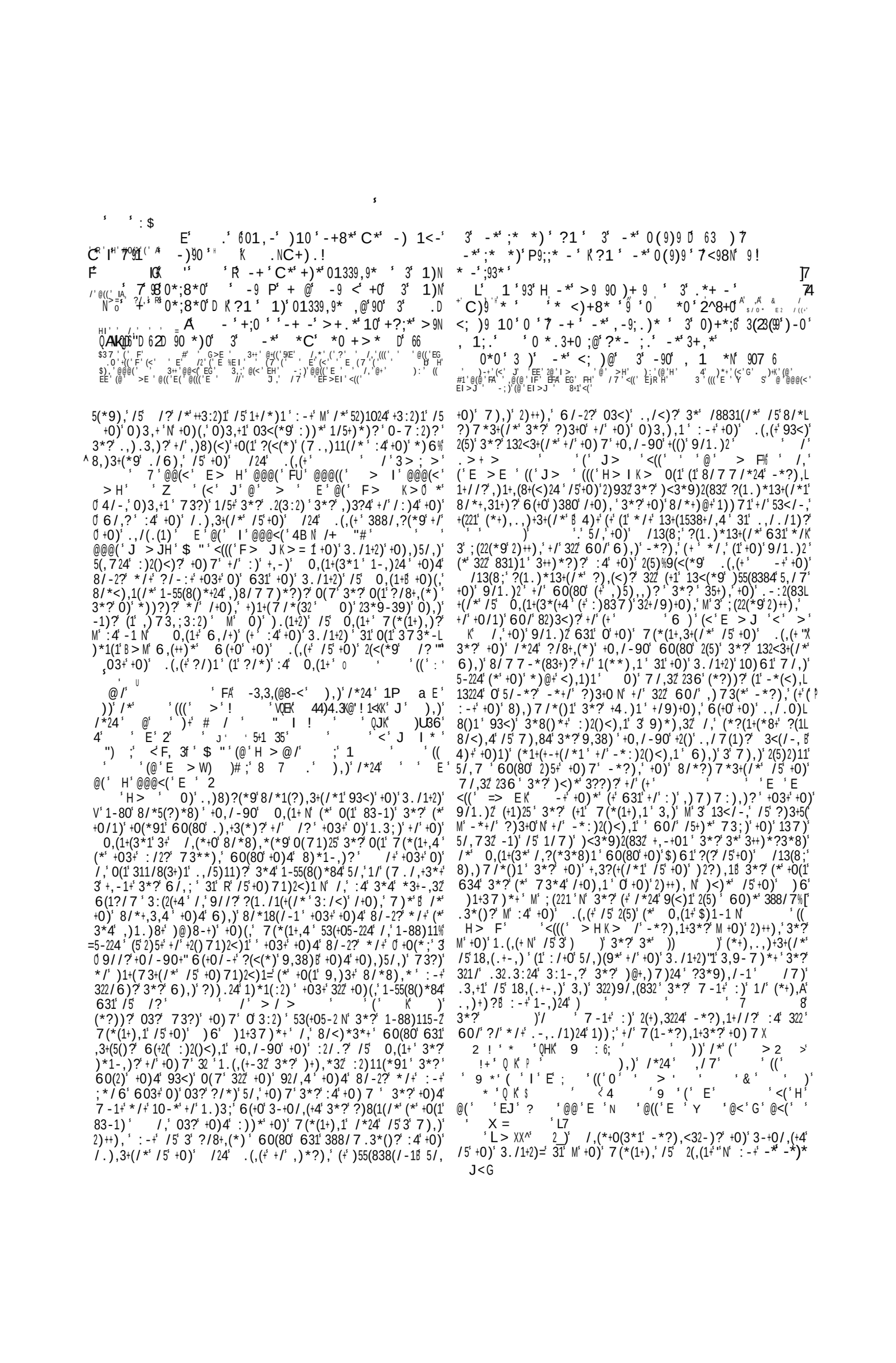
?(1. / 1(+(/ * ' 0) *' 80 - ,80%8) * 1 - ,) 1' 7 (*(1+),(3 ,) : - ;) 1' / ,' +0)' ,) 8 / * 8(2(3+(/ *' / 5' / 55) * ?), 1' 3,)' ,) 9 - 23+) ?' 388 / ,?(* 9' +/ ' +0)' 6 / ,?' / 5' 0,(1+' 3 * ?' 31' (*' 0(1' . ,) 1) * 8) ' +0) 4' 3,)' <32(?') <) *' 31' (5' 0)' 6),)' . ,) 1) * +' (*' .),1 / *' + / ' ,3+(54' +0) 7 ' %, %)' 10 / - 2?' 32 6341' :)' - . / *' / - ,' 9 - 3, ? ' 0' 2) 1+' 3+3*' 9) +' M' 3*' 3?<3 * +39)' 393(* 1+' - 1 B N' +03+' 1 - : +2)') *) 7 4' ; * / 61' 0 / 6' + / ' 3<3(2' 0(7 1)25' / 5' / - ,' 7 (1+3 ;) 1' 6 0) +0) ,' / 5' (22%+(7) ?' 2) * (+4 ' / ,' *)) ?2) 11' 1) <), (+4 B 0)' : - / 41' - .' 7) *' 6(+0' . ,) L 1 - 7 . +(/ * ' / ,' -,9) 1' +0) 7' + / ' ?) 1. 3(, ' 0)' ,) . ,) 1) * +1' +0)' 7 (*(1+), 1' 3 * ?' . , / 5) 11 / , 1' / 5' +0)' 9 / 1.) 2 ' 31' 2(8) * + (/ - 1 ' / ,' 31' / <), ' 1+, (8+ ' ' - 1+' 31' 3. .) 3, 3 * 8) 1' < 3, 4 ' 0)' , 3(1) 1' 8 / * +, 3? (8L +/ , 4' 123 * ?), 1 ' +/ ' . ,) '- ?(8)' 7) *' 393(* 1+' +0)' +, - +0 ' / ,' +/ ' ?) 1+, / 4' +0)' .) 38)' / 5' +0)' 80 - ,80 ') ' 10 / - 2?' +0),) 5 / ,)' 1+ - ?4 ' : 4' 3++) * + (/ *' +/ ' +0)' 18, (. + - ,) 1 ' : 4' 83,) 5 - 2' / : 1), <3L +(/ * ' : 4' 6 3+80(* 9' / - ,' / 6 *') @ .), () * 8) 1 ' : 4' 8 / * 5), , (* 9' 6(+0' / - ,' : ,) +0,) * ' 3 * ?' 3 : / <)' 322' : 4' 5), <) * +' . , 34), ' +/ ' 9) +' 38C - 3(* +)?' 6(+0' M' 0(1' ?) <(8) 1 N' +03+' 6) ' 7 34' :)' 8 / 7 .) +) * +' +/ ' 8 / - * +), 38+' +0) 7

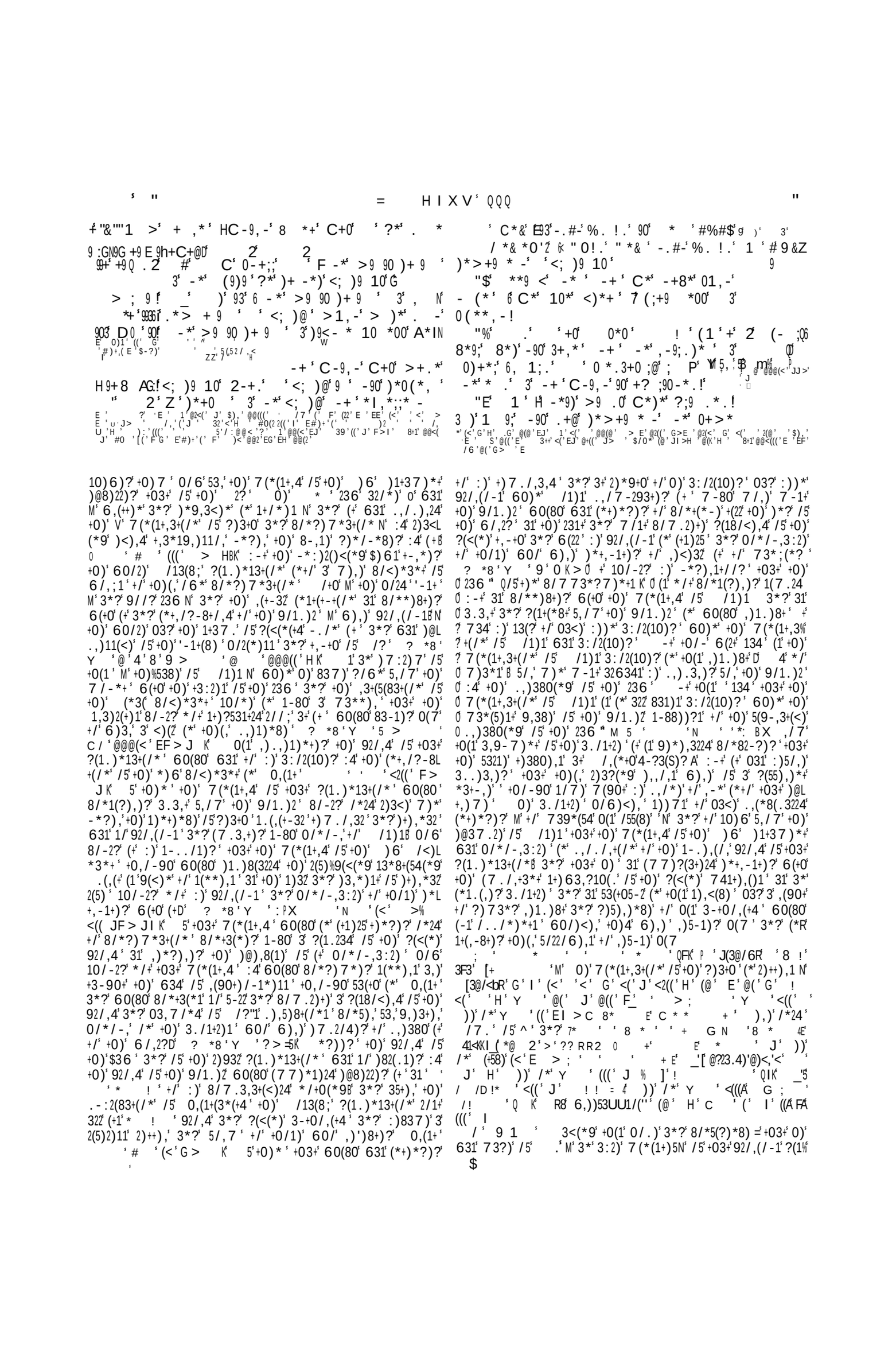
' E > F

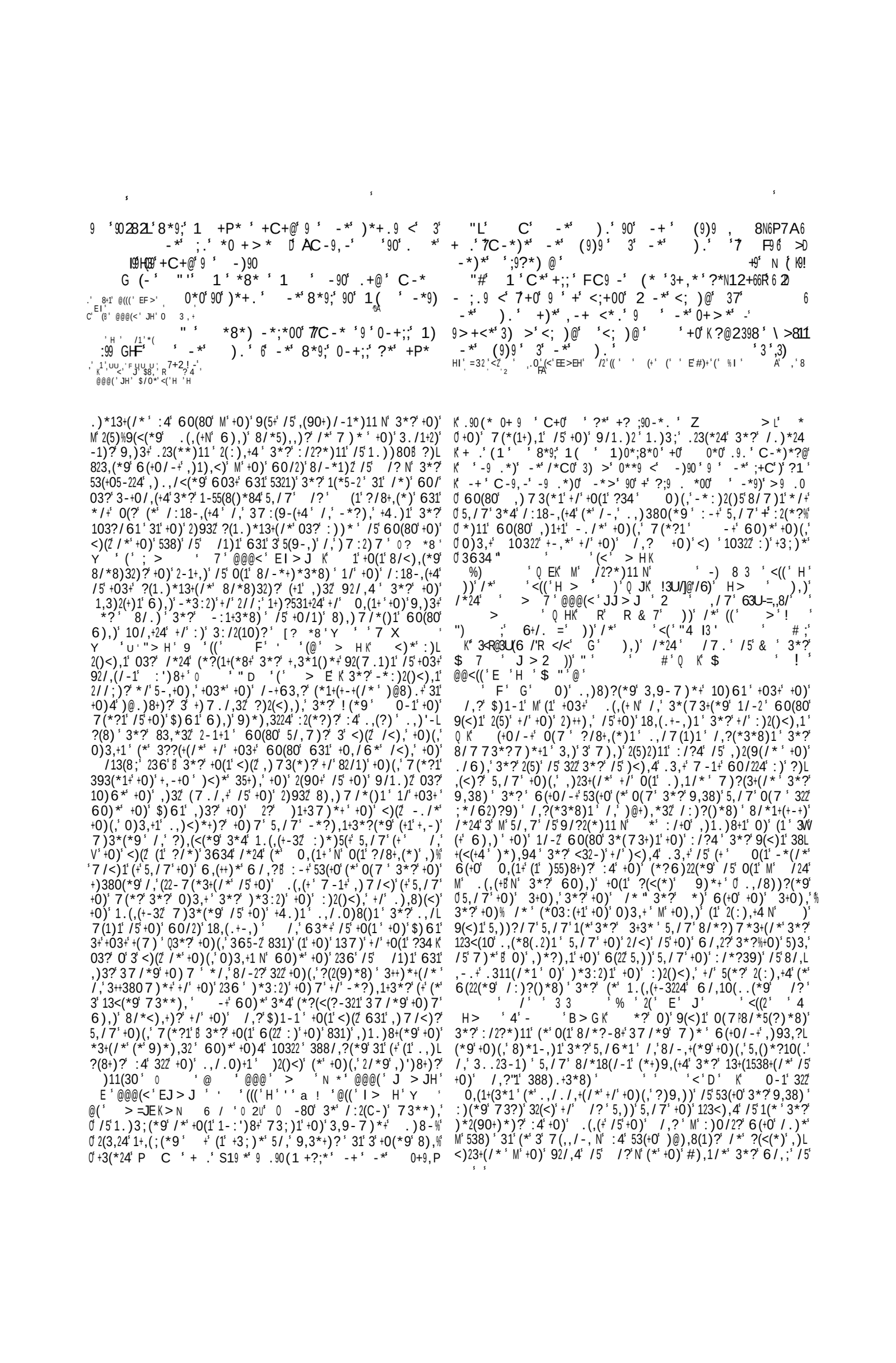
+' (1' .), 03 . 1' (7 . / 11(: 2)' (*' +0(1' . ,) 1) * +' 1+3+) ' +/ ' 1) . 3L , 3+) ' 5), <) * +' 38+(<)' S) 32' 5, / 7' 3 * ' / <), %3 * @(/ - 1' 1 / 2(8(+ - ?) X 3 * ?' +0 / - 90' 6) ' 10 / - 2?' * / +' 4() 2?' +/ ' 3 * 4' +0(* 9 ' 60(80' +3 ;) 1' - 1' / 55 5, / 7' / - ,' . ,) 1) * +' 1), <(8) 1' 4) +' (+' 734' 1 / 7) + (7) 1' :)' . , / 5(+3 : 2)' 5 / ,' - 1' + / ' ,) 8 / 22) 8 + ' +03+') <) *' + ' #3 - 2' 8 / - 2?' 03 <)' M' * / ' ,) 1+' (*' 0(1' 1. (, (+' N' (*' . ,) 380(* 9' 3+' , / 31' +0, / - 90' 0(1') 3, *) 1+' ?) 1(,)' + / ' 2) 3, *' +0)' 1+3+)' / 5' +0)' / ,(*+0(3 * 80 - ,80 ' > ? 5' 0 / 6) <), ' / - ,' 0) 3, +1' :)' , (90+' 6(+0' / ?' / - ,' ?(1C - ( ) L +- ?) 1' 6(22' +), 7 (* 3+)' (*' +03 * ; 19(<(* 91' / - ,' 8 / * 52(8+1' (*' <(8+/ , ()1' 3 * ?' +, (- 7 . 01' 3 * ?' +0)' 23 : / - ,1' / 5' +0)' 53(+05 - 2' 7 (*(1+),' 6(22' :)' 388) . +)?' 3 * ?' 9, 38(/ - 124' ,) 63, ?) ?' : 4' / - ,' / ?' 60) +0), ' 0(1' 0) 3,), 1' :)' 13<)?' / ,' .), (10' - + ' 0 / 6' ?,) 3?5 - 2' (1' +0)' 831)' / 5' * - 7 :), 1' +/ ' 60 / 7' +0)' : 2) 11)?' 9 / 1L .) 2' (+1) 25' :) 8 / 7) 1' M' +0)' 13</ - ,' / 5' ?) 3+0' - * + / ' ?) 3+0' N' 3 * ?' +0)' 53(+05 - 2' 3 * ?' 355) 8+(/ * 3+) ') * ?) 3</ - ,1' / 5' 7 (*(1+), 1' 5 / ,' +0) (,' 132<3+(/ * ' 1), <)' / * 24' +/ ' 1) 32' 3 * ?' 399, 3<3+)' +0) (,' 8 / * L ?) 7 * 3+(/ * X ' * ' <(' I ' E % ' 0(' H > K' 0(1' (1' 3' . 3(* 5 - 2' +0 / - 90 + ' +/ ' +0)' 1), <3 * +1' / 5' 0, (1+B 31' +0) 4' 6 / - 2?' 923?24' :)' 0' +0)' 13</ - ,' / 5' 2(5)' - * + / ' 2(5) N' + / ' 322' 60 / ' 8 / 7)' 6(+0(* +0)' 1 / - * ?' / 5' +0) (,' </(8)' / ,' 60 / ' : 4' 3 * 4' 7) 3 * 1' 83 * ' :)' 73?)' 38C - 3(* +)?' 6(+0' +0)(,' ?/8+,(*) > = - + 0 / 6' 10 / - 2?' +0)' 8 / * 1(?), 3+(/ * ' / 5' +0)' 8 / * 1) C -) * 8) 1' 60(80' 7 - 1+' 5 / 22 / 6' / * ' / - ,' . ,) 380(* 9' + / ' / - , 1) 2<) 1' 3 * ?' / - ,' 0) 3,), 1' 73 ;)' - 1' 10, (* , ' : 38 ; ' 31' (+' 6),) ' - * ?), ' +0)' 8 / * 18(/ - 1 *) 11' / 5' - * 6 /, +0(*) 11' 3 * ?' (* 1 - 55(8() * 84 X) 1.) 8(3224' 31' 1 / ' 73 * 4' 1+(22' 3?- 2+), 3+)' 3 * ?' M' 8 / , , - . + +0)' 6 / , ?' / 5' / ? N' + / ' +0)(,

/ 6 * ', - (* ' 3 * ?' +03+' / 5' +0)(,' ?) 2 - ?) ?' 5 / 22 / 6), 1' 5' +0(1' 631' +0)' 831)') <) * ' 60(2)' +0)' 3. / 1+2) 1' 6),)' 2(<(* 9' 0 / 6' (1' (+' 3+' . ,) 1) * +' D' 3 * ?' 603+' 6 / - 2?' 0 / 24' #3 - 2" 1' <), ?(8+' :)' (*' +0(1' ?34' 8 / * 8), * (* 9' 3 * ' (7 7) * 1)' . , / . / , +(/ * ' / 5' . , / 5) 11) ?' +) 380), 1' 3 * ?' , - 2), 1' (*' +0)' 0, (1+(3 * ' 80 - ,80' D' 34' 6)' +0) * ') * C - (,)' 0 / 6' +0)' 831)' (1' 6(+0') 380' / 5' - 1 ' 7 34' 6)' 83,) 5 - 224' 63+80' / - , 1) 2<) 1' (*' +0(1' 7 3++), ' 3 * ?' 1)) ; ' +0)' +) 1+(7 / * 4' / 5' / - , ' 8 / * 18() * 8) 1' - * ?), ' +0)' +) 380(* 9' / 5' +0)' / 24' . (, (+' +03+' M' 31' / 5' 1(* 8), (+4 ' 31' / 5' / ?' (*' +0)' 1(90+' / 5' / ?' 1 / ' 6) ' 734' 1.) 3 ; ' (*' 0, (1+X N' 34' +0)' / , ?' 321 / ' 1) * ?' 5 / , +0' <), 4' 7 3 * 4' 53(+05 - 2' 3 * ?' 3 : 2)' 7 (* (1+), 1' (* +/ ' 0(1' 80 - ,80 ' 3 * ?' 1+ / . ' +0)' 7 / - +01' / 5' 322' 5321)' +) 380), 18' 3 * ?' 734') <), 4' 0, (1+(3 * 2) 3, *' +/ ' ?(1+(* 9 - (10' :)+6)) *' 9) * - (*)' 10) . 0), ?1' 3 * ?' 322' ; (*?1' / 5' 6 / 2<) 1' 3 * ?' 5 / @) 1' (*' 10)) . "1' 82 / +0(* 9 X ' * ' ' V > E ' ' <((' J > E K

% & ' (' ' ' > J ' Q /+) ' ((' H > F K' 0) ' 3 . / 1+2) "1' / . . / *) * +1' 6 / - 2?' :)' ,) 3?4' +/ ' 8) * 1 - ,) ' +0) ' 5 / ,) 9 / (* 9' ?) 823L , 3+(/ * ' 31' 3 * / +0), ' (* 1+3 * 8) ' / 5' 0(1' 0' 8 / 7 7) * ?(* 9' 0(7 1)25 ' N' 5 / , ' (+' (1' . , / : 3 : 2) ' +0) 4' 322) ?9) ?' +03+' 0(1' 5 / , 7), ') . (1+2) ' 8 / * L +3(*) ?' 1 / 7) ') @37 . 2) 1' / 5' +0(1' ; (* ?B : - + 8 / - 2?' +0)' 0, (1+L (3 * 1' 3+' / , (*+0' (* ' 9) *), 32' 1 - 1.) 8+' 0(7' / 5' :) (* 9' 38+ - 3+) ?' : 4' 1 / ' 7) 3 * ' 3 * ?' 1) 25(10' 3' 7 / +(<)' D (?' 0)' / , ' 0(1' 5, () * ?1' *)) ?' 3 * 4' 0 - 7 3 * ' +) 1+(7 / * 4' +/ ' +0), (,' 803,38+), ' D 31' +0),) ' 3 * 4' / 8831(/ * ' 5 / , ' / +0), ' 80 - ,80) 1' +/ ' 9(<)' +0) 7' ,) 8 / 7 7) * ?3L +/ , 4' 2) ++), 1' +/ ' +0)' / , (*+0(3 * ' 80 - ,80' D ' +03+' +0)' / , (*+0L (3 * 1' 10 / - 2?' +0 - 1' +) 1+(54' +/ ' +0) (,' 803,38+), ' 5 / , ' +0)' 13+(1538L +(/ * ' / 5' / +0), ' 80 - ,80) 1' D 0(1' (* ?)) ?' 631' +0)' 831)' / 5' 1 / 7) ' 60 / ' 03?' 8 / 7)' (* ' 3 7 / * 9' +0) 7' 6(+0' 3 * ' 3 7 : (9 - / - 1' 803,38+), = 3 * ?' 7 (11(/ * ' 3 * ?' 60 / ' 63 * +) ?' 3 * ?' ,) 8) (<) ?' 1 - 80' ,) 8 / 7 L 7) * ?3+(/ * 1' : - + ' +0)' 3. / 1+2)' 03?' * / ' *))?' / 5' +0) 7 ' / , ' +0)' / , (*+0(3 * 1' +0) 7 1) 2<) 1' 6),)' 0(1M ') . (1+2) ' / 5' 8 / 7 % M' 7) * ?3+(/ * ' N' (+' 631' M' 6, (++) * ' (* ' 0) 3, +1 N' Q 31' 1 / 7) ' ,) 3?' (+' .), 03.1' 6(+0 / - + 1 - 55(8() * + 3 - + 0 / , (+4' 5, / 7 ' 73 * - L 18, (. +1' / , ' 8 / . () 1' K' 3 * ?' 2) 9(: 2)' (* ' +0), (,' 2(<) 1 ' 1 / ' +03+' 7) * ' / 5') <), 4' * 3+(/ * ' 3 * ?' 23 * 9 - 39)' 7 (90+' ,) 3?' 3 * ?' - * ?), 1+3 * ?' +0)' (7 . / , +' / 5' (+ ' , ' 0)' 1 / ' <32 -) ?' +0(1' +) 1+(7 / * (32 ' 3 * ?' 1 / ' 2 / <) ?' +0) 7' 31' +0)' 1) 321' / 5' 0(1' 7 (* (1+, 4 ' +03+' 0)' 03?' +0(1') . (1+2) ' 31' (+' 6),) ') * 9, 3<) * ' (* ' 0) 3, + ' / , ' +0) 4' 6),) ' V' 73 * (5) 1+2', ?) 823,) ?' +/ ' 322' 7) * ' +/ ' :)' 0, (1+"1') . (1+2) N' ,) 8 / 7 7) * ?(* 9' 0(1' 3 . / 1+2) "1' 7 (* (1+, 4 ' 60(80' 0)' 03?') 7 L . 2 / 4) ?' 0(7' (* 5, 37 (* 9 ' 0(1' 631' * / + 6, (++) * ' 6(+0' (* ; ' / * ' . 3 .), ' : - + ' : 4' +0)' . (, (+' / 5' +0)' 2(<(* 9' / ?' * / , ') * L 9, 3<) * ' 31' +0)' 236' / 5' +) * ' 8 / 7 7 3 * ?7) * +1' 631' : 4' +0)



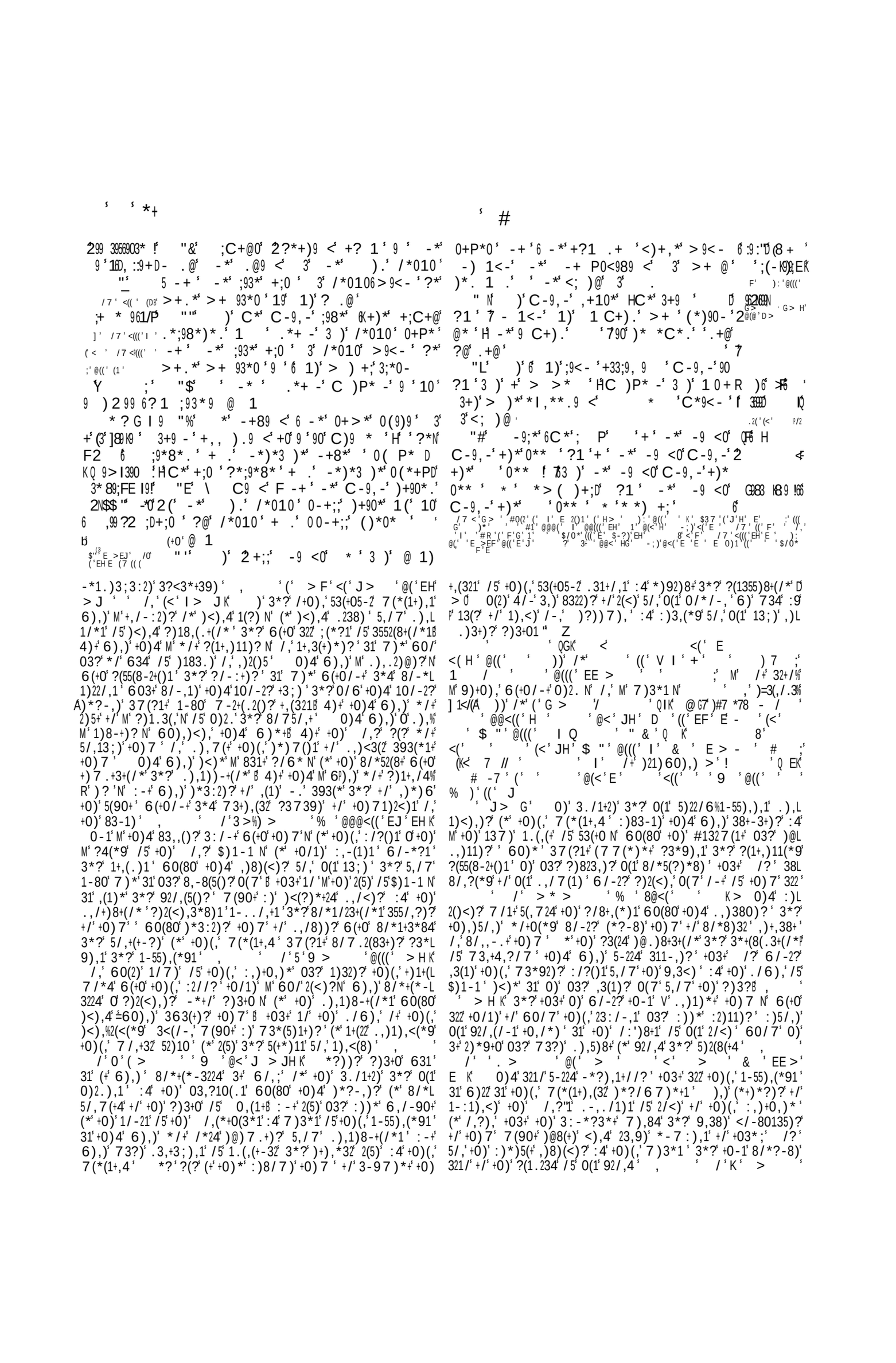


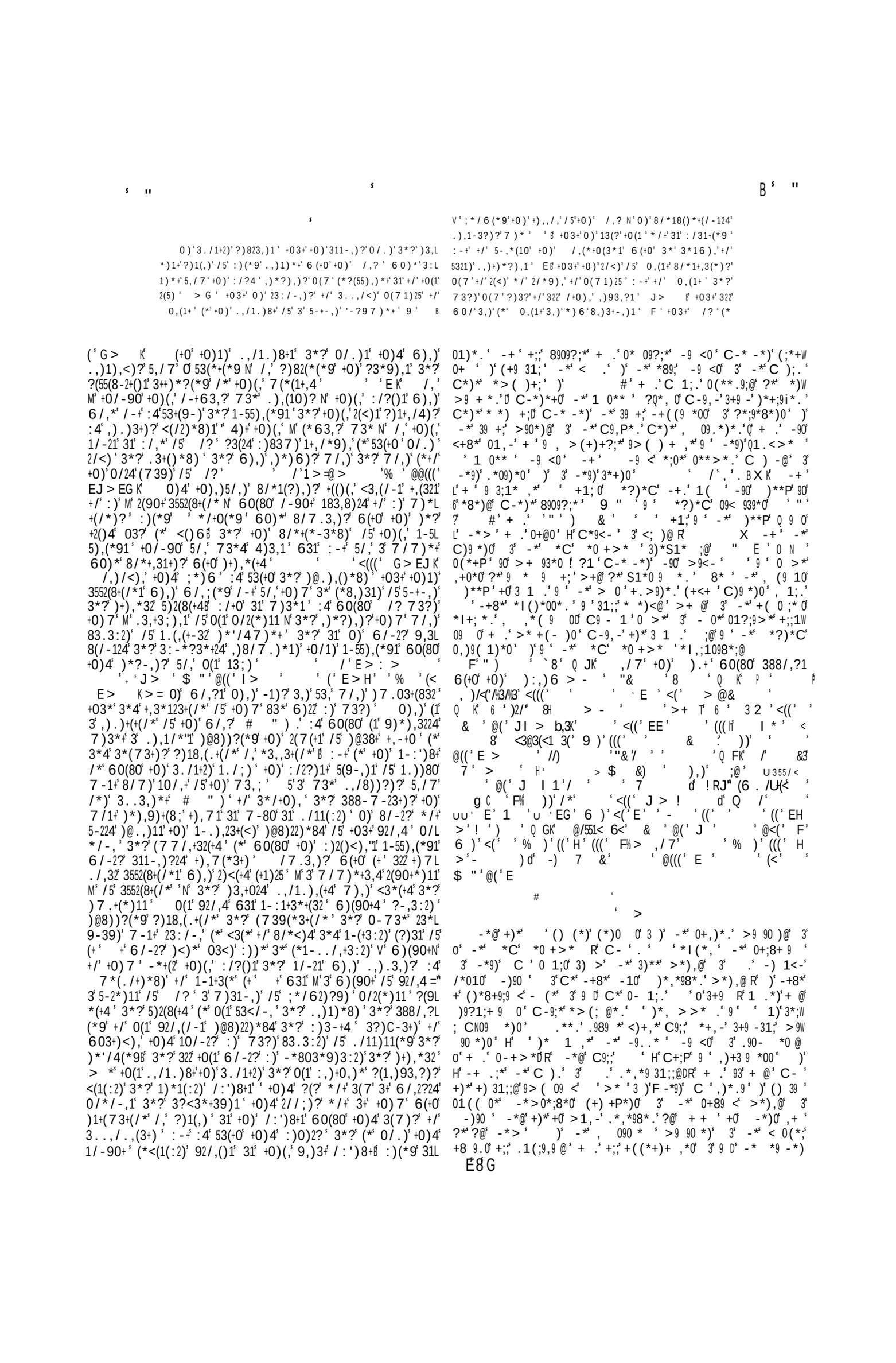


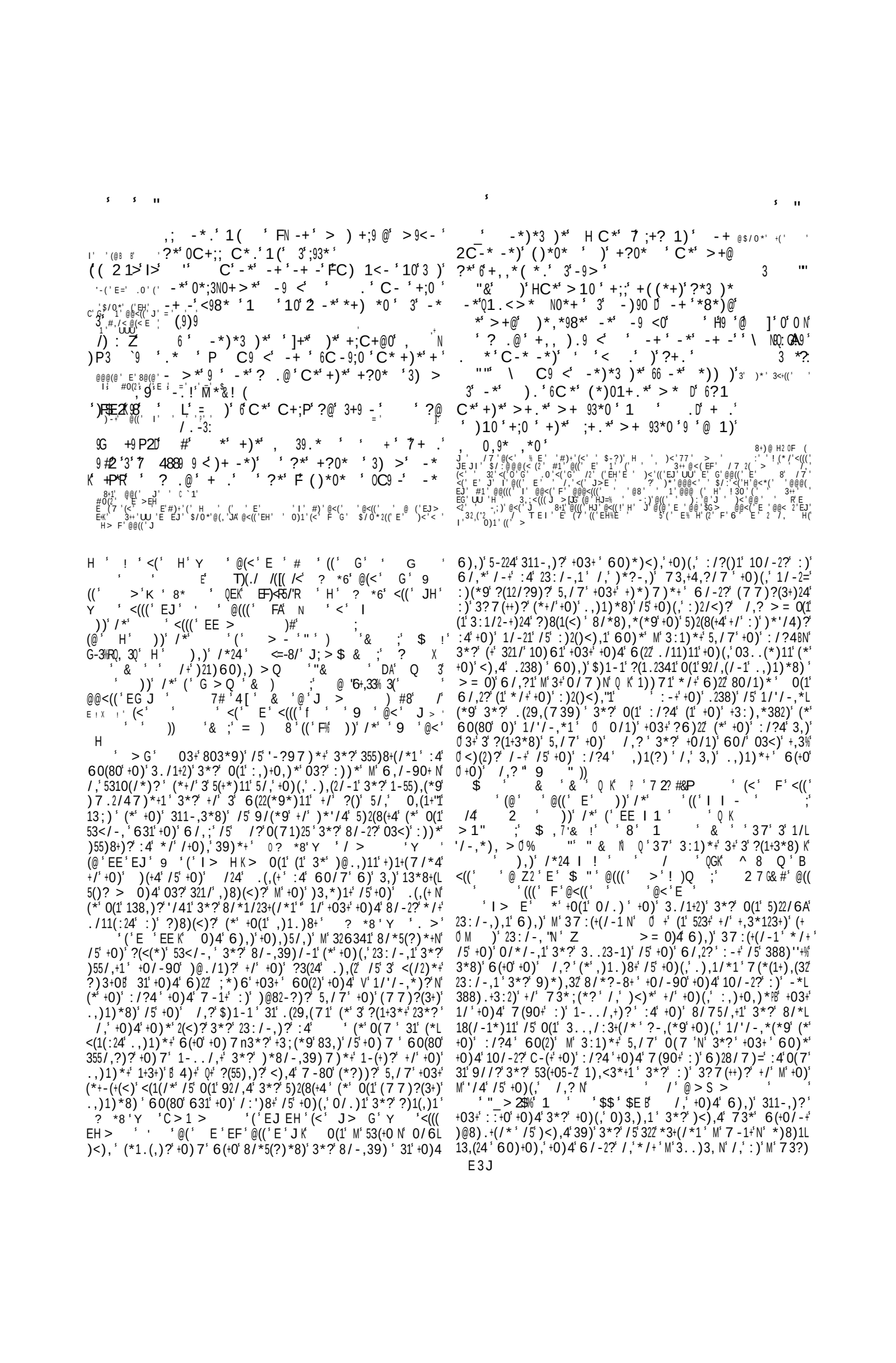
6;D28*)@ >+ 0 , 0,9* ,*9 ' -*09<- ' 3 ') AC*' ()*+,- ' 1)0*;8*0 '?1 '[6 9N9;'
-)90 '/*010 -*).'D + .' 1)0*;8*0 9 "62 .'
@ 1)' 0*)8+ 0 3)'/*010'0+P*
; 9<- ' '0-9 *' 1 ' 3 .+)P *00 'K-+ -' * I 9999 05
ÀA0-9 *.' >' 1)' -*+) 0 ' 8 -*
;9<- ' 3 -*P C;*.<*' 3 -*<;)@'
.'R9 ' -*3+,*' 3 /*010 -)90

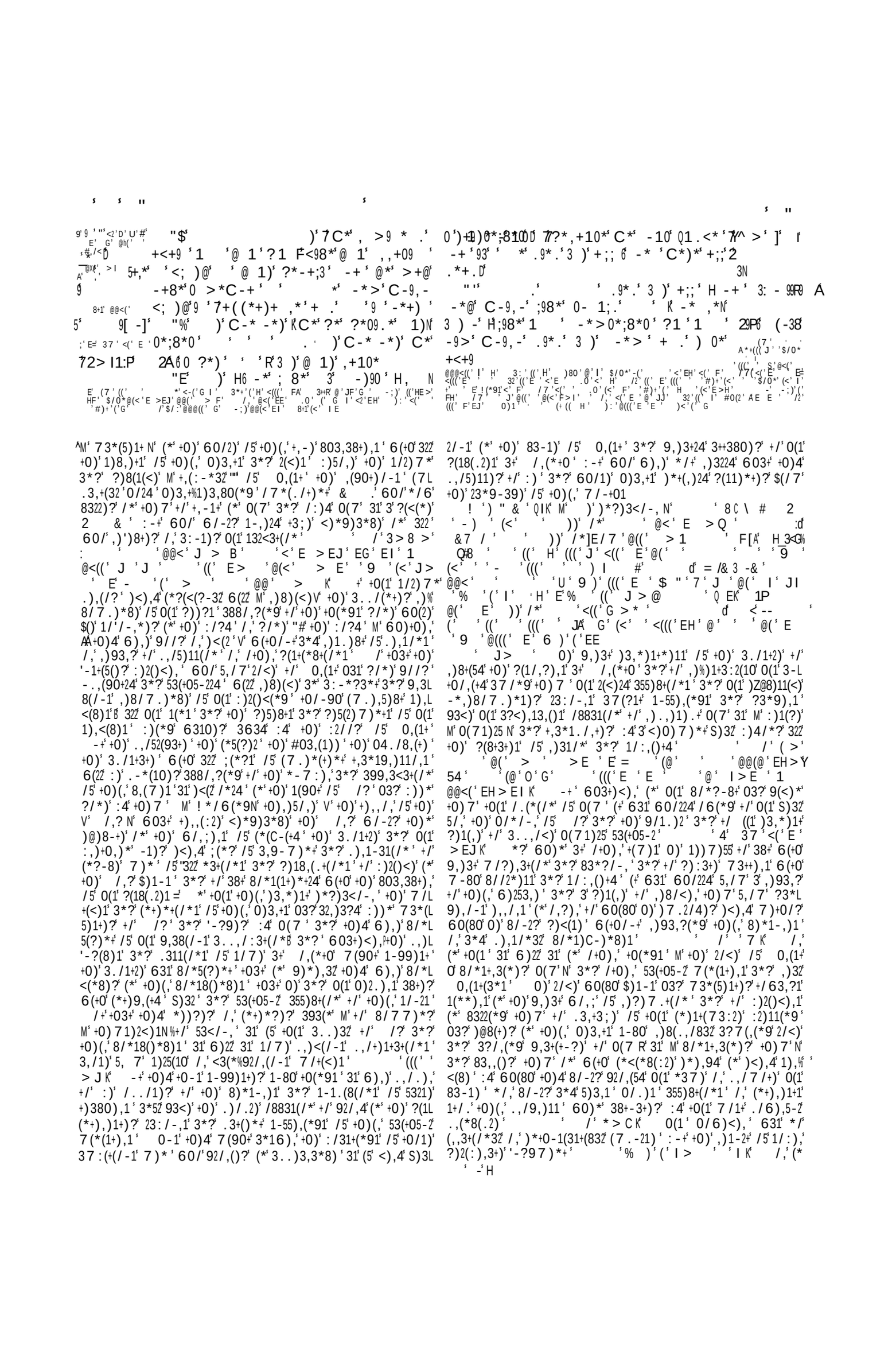
(7./,+3*8) ' (*+0)' 1+,3*9)' 3*?' 3*+(%80,(1+(3*' 8/*+,/<),14'
/5 23+)')@8(+)?')<)*' 37/*9 .,/+)1+3*+ 7(*(1+),1 3*?' ,-2),1'
/5 +0)' 80-,80 ' 3:/-+0)' .,/.,()+4 /5 8(,8-23+(*9 +0)' 0/24
18,(.+-,)1 32/*)' 37/*9 73*;(*?(*9)*),32X
1 # Q K ! / 3 ('U)(((']+1<
@(' J 9 <((' E - (' J % ((' >
W " 8 @A3R[5@)<'))' /*' & ' @<(((' 0 +1(9%
0 *(5()+0 +/ 10,(*;' :38;' 31 8/63,?1 (*63, " >
$ & Q K ,)(,3]=) 3),' /*24 >
"<(' H' J' S ' @(' E 2 I @/ #,'
00 5 1037) N ' 1P7 ' & ' @(<' I' %)' (((' I'
$ "' @((' & ' J' (((' G > 9 / ;' R) #
@(' J))' /*' & ' @@' EJ > $) /&))# ,'
1 = /'),)' /*24 ,/7' @ '/ & ' !3*'@1//7
((' > Q#' / 8' </ &P &'))' /*' ' @
@(((' 'J'H' 5 +0)*' 35+),' 322' +0)' 9/1.)2' 60(80 +0)' 3./1+2)'
.,)380)?' 1/'.23(*24' 6),)' M 0(??)* N' /,' M 8/<),)?' 6(+0 3'
M <)(2 N' 31 +0)' /13(8;' 236 03?' :))*' (5 (+1 +,-+0 '*3+-,)'
3*?' 92/,4 6),)' 8/*8)32)?' 5,/7' 3*4 60/' 0)3,?' (+' +0/1)'
.),1/*1 6),)')<(?)*+24 31 4)+ (*' 3 2/1+)1+3+)' 3*?' (*' +0)'
7/1+ (7 7(*)*+ ?3*9),' /5 5(*32 .),?(+(/*' 3*?' +0)' <)(2
7-1+ :)' -./*' +0)(,' 0)3,+1' +0,/-90 +0)' .,)<32)*8)' /5
.,(?)' .,)'-?(8)' 3*?' -*9/?24 2-1+1'
(((' E > K /,' 3+3*' M +0)' 9/?' /5 +0(1 6/,2? N'
60/7' 322 -*8/*<),+)?' 7)*' 6/,10(.' 3*?' 1),<)' (*' /*)' 634
/,' /+0),' .,)<3(2)?' +/' :2(*?' +0)'-*?),1+3*?(*91 /5*-7:),1
60/' 0)3,?' +0)' 9/1.)2' 3*?' ?(1:)2()<)?' (+ +0,/-90 2/<)' /5
1(*' 3*?' .,(?)' /5 0)3,+ +03+' 1/' +0)' M (22-7(*3+(/*' /5 +0)'
M 9/1.)2 /5 +0)' 92/,4 /5 0,(1+ N' /' ;' K)<)*'
+0)' 2(90+ 60(80)@0(:(+1 1/' 82)3,24 +0)' 92/,4 /5 0,(1+' 31'
V +0)' 739)' /5 /? N' ,).,)1)*+(*9 3*?' ?(1.234(*9 322 ?(L
<(*)' .),5)8+(/*1 03,7/*(/-124)@),8(1)?' (*' +0)' .),1/*'
803,38+),' 3*?' 132<3+(/*' /5 7 73*-)2' M 7(90+' */+ 10(*)'
M -*+/' +0)7 N' /,' 6(+0(*' +0)7' % 8@(@' J K>'
7 7)*1)' 7-2+(+-?)1' /5 3+3*"1 1-:')8+1 3,)' ;).+ 5,/7'
0)3,(*9 +0)' 9/1.)2 /+0),1 0)3,' 3*?' 5/,' 3 +(7)' 3,)' :2(*?)?'
:4 +0)' +)7.+),' +/' /../1)' /,' ,)')8+ (+' ' @(((('
I K 3*?' 0(1 9,3*?' ?)1(9*' (1'3+ 3*4 ,3+)' /,' :4 3*4 7)3*1'
+/' ;)).'/-+ +0(1 +,3*15/,7(*9 2(90+' 4)+ 73*4' 60/' 5/,' 3
1)31/*' 6),)' :2(*?)?' 03<)' :))*' 3+ 2)*9+0 8/*<),+)?' -+
37/*9 +0)' *-7:),' /5 -*:)2()<),1 +0)')*)74 (1 .),7(++)?'
(*' 365-2 '-?97)*+' +/' :2(*?' 73*4 +/' +0)(,'.),?(+(/* 3*?'
+0(1 631 .)8-2(3,24 +/' :)')@.)8+)?' :4 +0/1)' 60/' 82/1)?'
+0)(,')4)1 +/' +0(1 2(92(+' 60)*' 3./1+2)1 6),)' +0)' .,)380),1'
3*?' +0)(,'?/8+,(*)' 631 8/*5(,7)?' :4)<(?)*+ 3*?' 7-2+(L
.2()?' 7(,382)1' /' > * K>0 0)' 53-2+ (1 */+ (*'
0 -1' /,'(*' +0)' /:18-,(+4 /5 +0)' 9/1.)2' :-+ (*' +0)(,' /6*

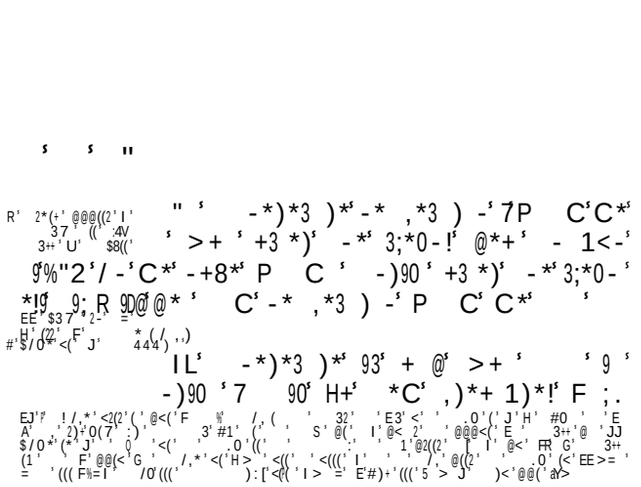
0 :2(*?*)11' 5/,' 6)' 0(?)' */+0(*9 5,/7' +0)7 " ! "# > +'
(1 31+/*(10(*9 +03+ 73*4 /5 +0)' 3*8()*+ 0,(1+(3*' 6,(+),1'
-*?),1+//?' +0)' +,-)' /?' +/' :)' 7)3*+' :4 V' +0)' /?' /5'
M +0(1 6/,2? N' / > ' (<' G > '
'@((' EF > JJ' @(<' EI > J' @<(' G > ' 1 ' @@<(' '
> G' '<(' > J' 9)'(' I > H' ' <' I K -+'
(+' (1 */+ 13(?' /*' 603+ 388/-*+ +0(1 1(*9-23,'+(+2)' M +0)' /?'
M /5 +0(1 6/,2? N' 631 9(<)*' 0(7' 1 0)' */+' +0)' /?' /5'
322 6/,2?1' /5 322 39)1' /5 322 ?(1.)*13+(/*1 D *?' (1 0)'
/+' (' 3 7/,)' 1.)8(32 1)*1)' +0)' /?' /5 +0/1)' 60/' 3,)'
M ?)2(<),)?' 5,/7' +0(1 .,)1)*+)<(2 6/,2?' D N' 6)' (' H'
'@<' F > E '@<((' J > K > 0(1 10)61 321/'
+03+ +0)' 3-+0/,(+4 /5 +0)' 53+0),1' 31)@./1(+/,1 /5 18,(.L
+-,)' (1 */+ (7.2(8(+24 +/' :)' ?).)*?)?' /*' 3*?' +03+ +0)'
8/*8)11(/*1 /5 +0)' 5(,1 ,)5/,7),1 (*' +0(1 ,)1.)8+ 9,)3+24
)7:,,311)?' +0)(,'83-1)' (*' 3,9-(*9 393(*1+ +0)' .3.(1+1 >'
Q) QHK' 7'(<' E *'= '@@((' I > EJA' *' <('
I F[: '@(((' H > I '@(' F > 4- ((' G >
E (D)-'@((' F > E' @@' > J > * `8 a'
(' G' @(<' > H' 9)'(' > $ "' (' J' H
Q QJK 1%(7 7@&#1 '@' E & '@@(((' J '
E % (<' = =& :)' /*' (((' J > -'
3@/UU-(5</(1 (('))' /*' 9
(' G > - /') QHK' P 1/9 G .'
'@(((' & '@<(' '@((' 9 '(' ((' '
((' <(' - '(<' > - ;' - 8)'
))' /*' (((' > - ') /') &)' /9 ;'
1-344 U(' T d2 '> H3 ' - '(((' J > '
2 &) ' ;' 1 #),)' /*24 ,/7' &# ')
1 'UU'
0)' .)8-2(3,(+4 /5 +0)' 3./1+2)"1 7(*(1+,4' 3*?'
+03+ /5 0(1 53(+05-2 311/8(3+)1' 631 +0(1 8 +0)4 M' .,)380)?'
M */+ +0)7 1)2<)1 N' +0)4 ?(?' */+ 1)),' +/')@32+ /,')*,(80'
+0)7 1)2<)1' +0)4 ?(?' */+ 31.(,)' 35+),'3-+0/,(+4',)..-+3+(/*'
/,'3*4 1)8-23,' .,)%)7(*)*8)B 3*?' +0)4 .,)380)?' M 0,(1+
M $)1-1 N' 31 +0)(,'9,)3+ -:')8+ (*',)1.)8+ /5 0(1 #),1/*'
3*?' 132<3+(/*' 3*?' +0)' 9,)3+ /:')8+ /5 +0)(,'.,)380(*9 631'
+/')@32+ 3*?' 92/,(54 0(7' +0)4 ?)823,)?' 0(7' +/' :)' M +0)'
M /,? N' +0)' /,?' /5 +0)' 80-,80 3*?' M +0)' /,?' /5 322 N'
3*?' +0)4 8322)?' /*' 7)*+/' 388).+ /5 0(1 132<3+(/*' 1-:7(+'
+/' 0(1 3-+0/,(+4 3*?' :)8/7)' 0(1 /:)?()*+ 1),<3*+1'
/' . > & ((' G > H' ' K -+' 31 +/'
M +0)7 1)2<)1 N' +0)4 6),)' */+ /*24 5)22/6%1-:')8+1 /5 322'
0,(1+(3*1 +/' +0)(,'8/7 7/*' /,?' :-+ +0)4 6),)' +0)' 6(22L
(*9 1),<3*+1 /5 +0)' 80-,80 5/,' 0,(1+'1 13;)' +0)4 '-?9)?'
+0)7 1)2<)1+/' :)' 0/-*?' :4 +0)' 1+,/*9)1+ /:2(93+(/*1',)3?(24
+/' 23:/-,' <)*+-,)' 1-55),' 3*?' 1-:7(+ +/' +0)' ?))1+ ?)L
:31)7)*+' (*' ?/(*9 9//?' +/' 7)*' 31' 53,' 31 +0)' 92/,4 /5'

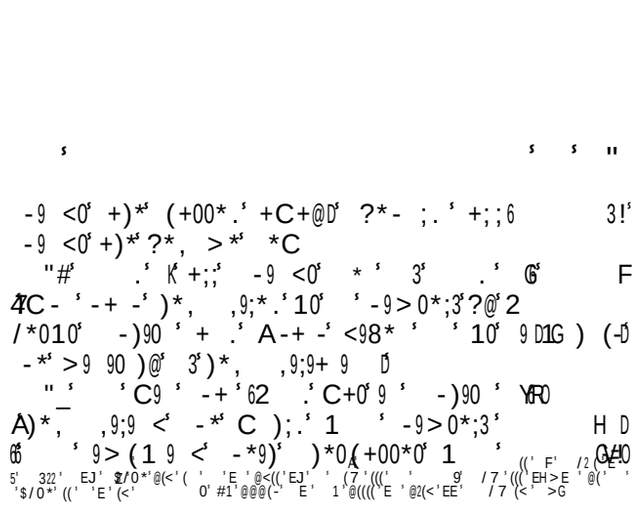


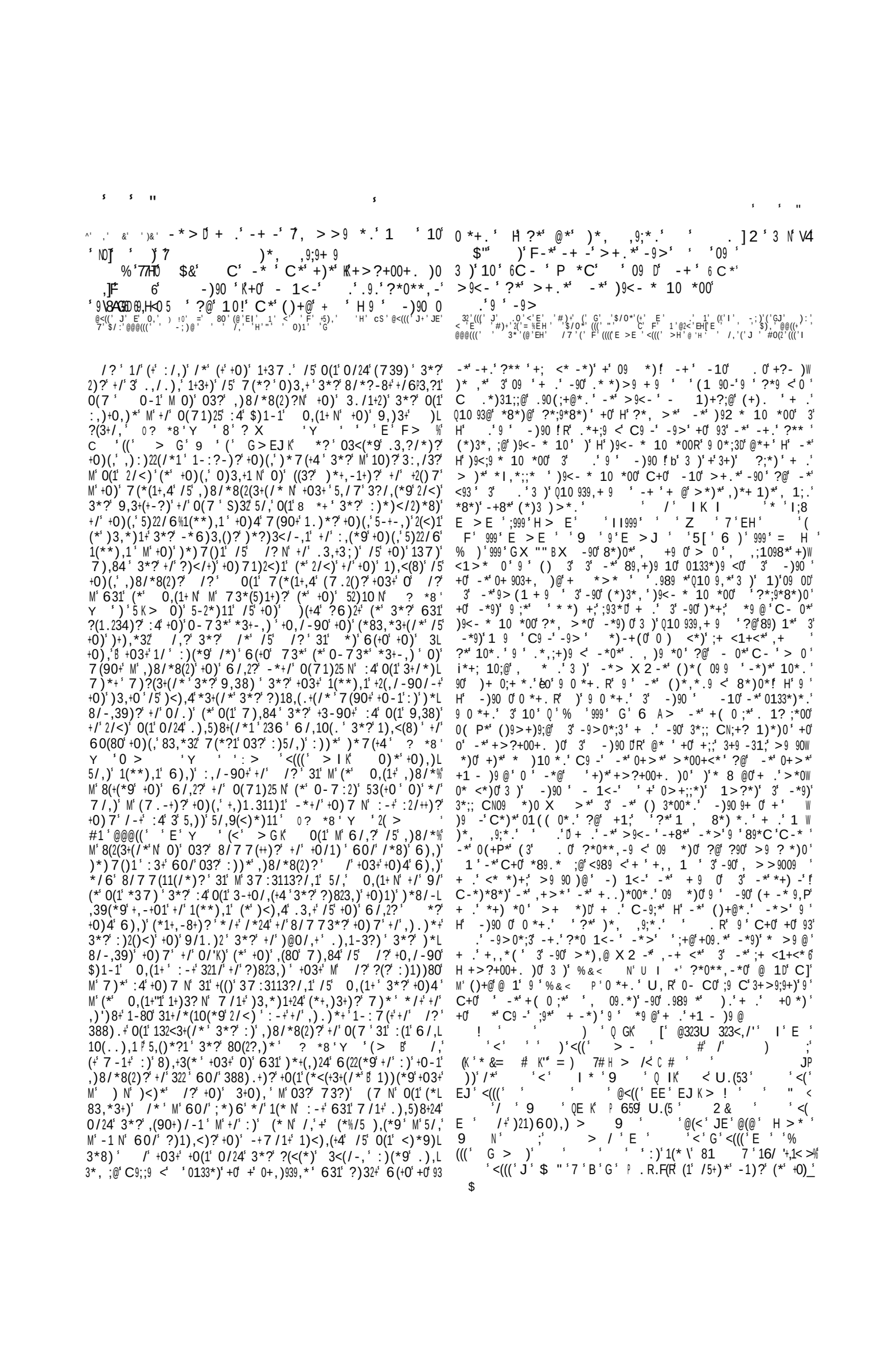


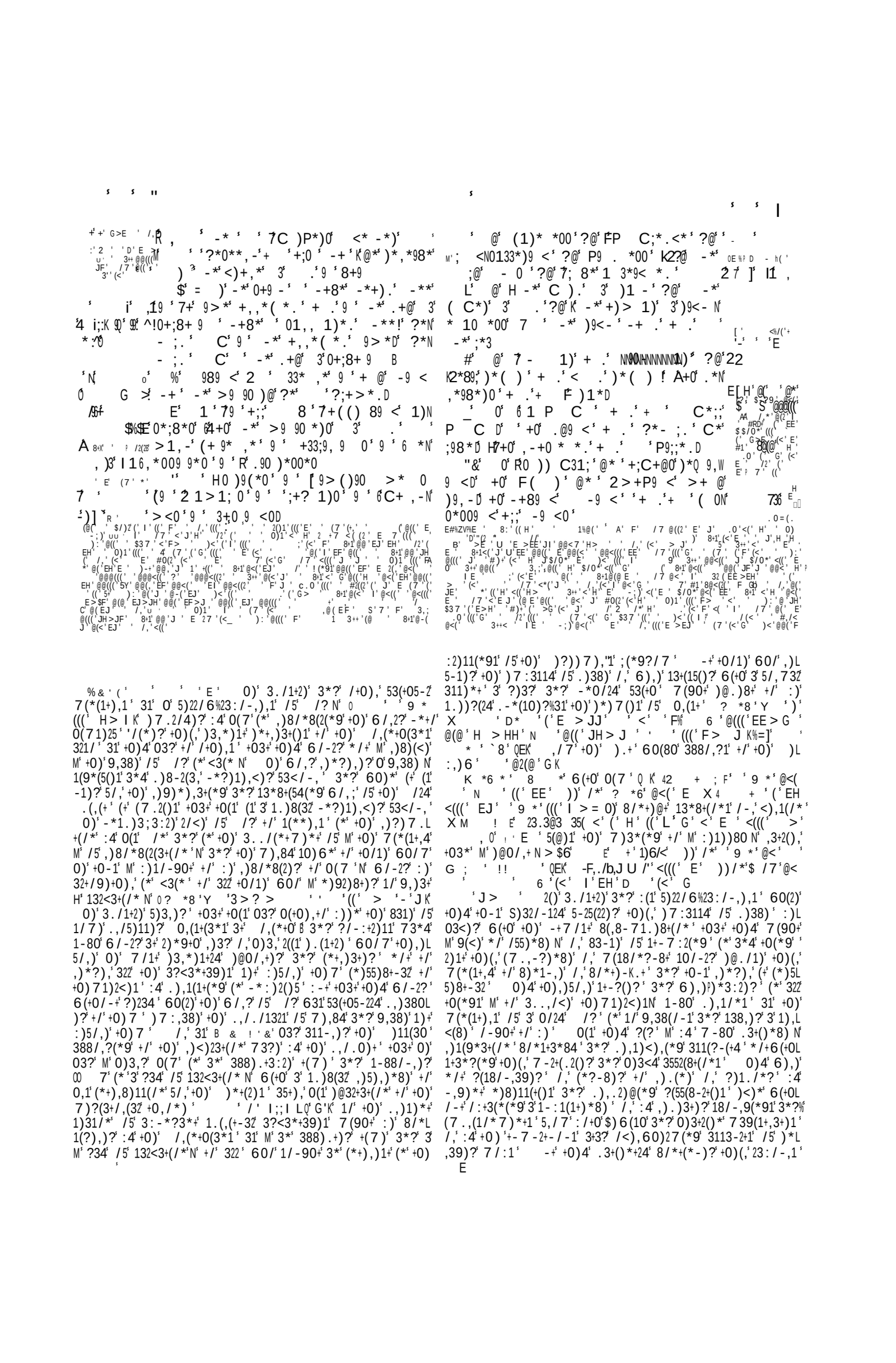


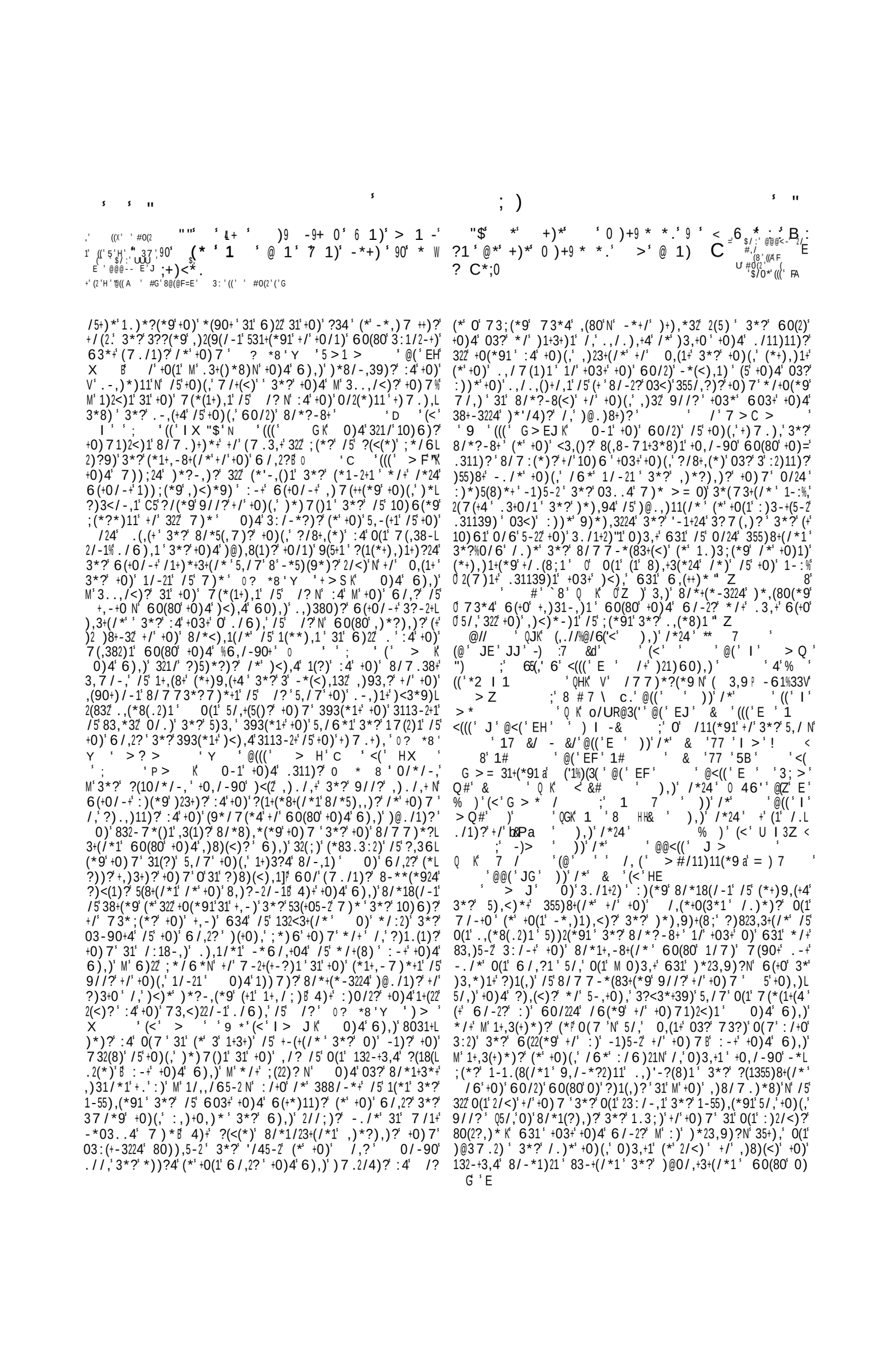


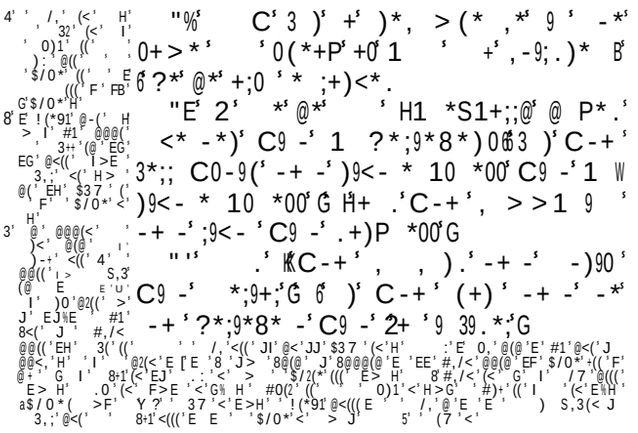


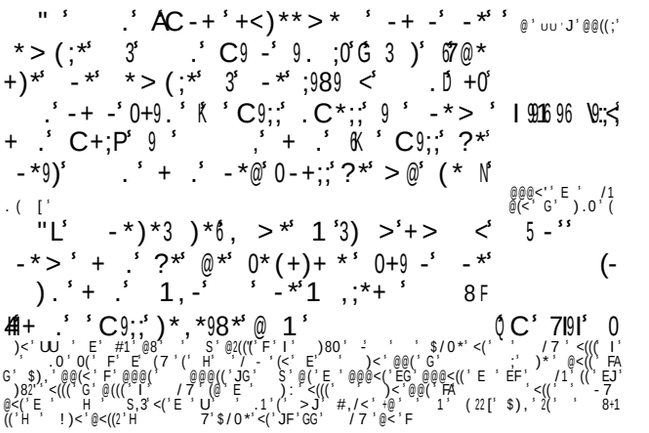


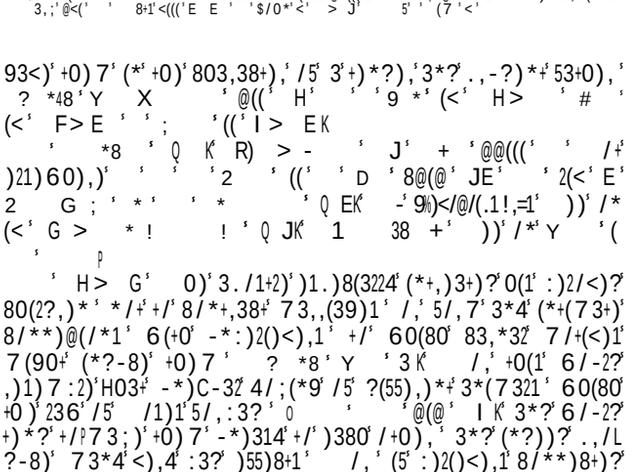


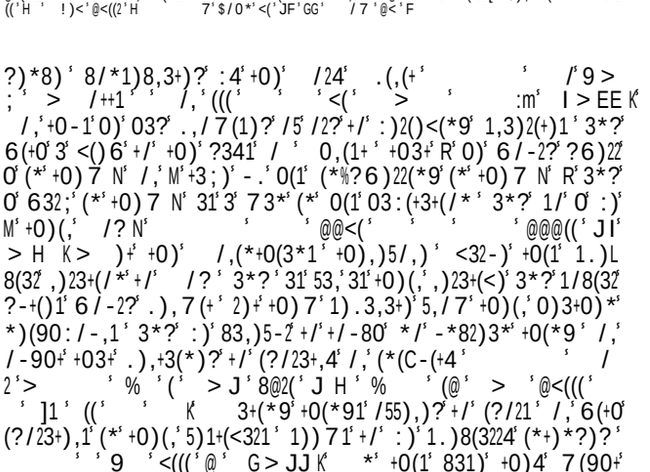


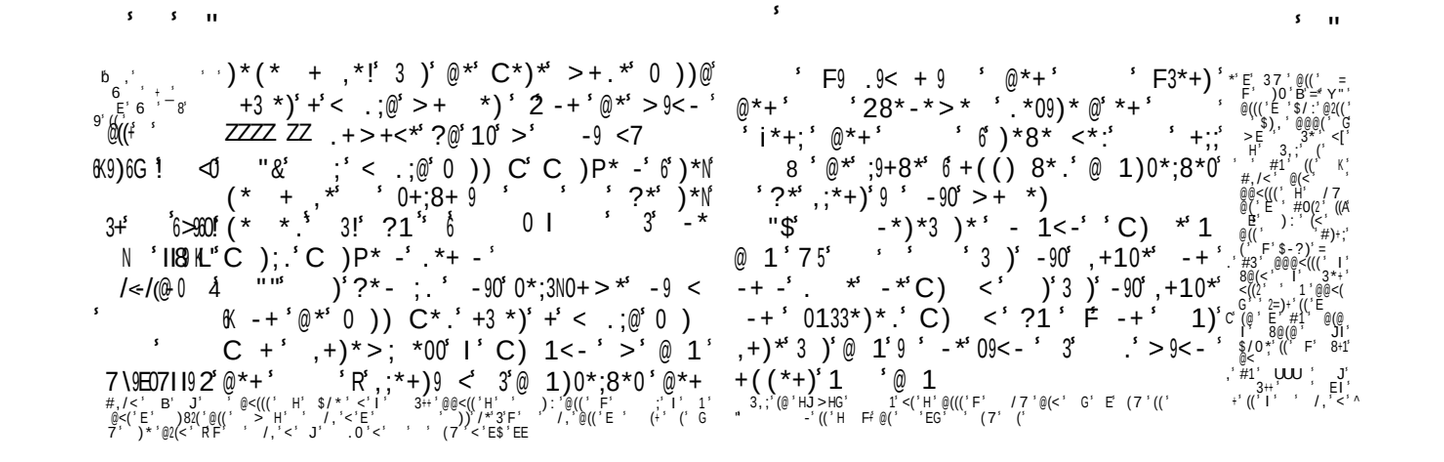


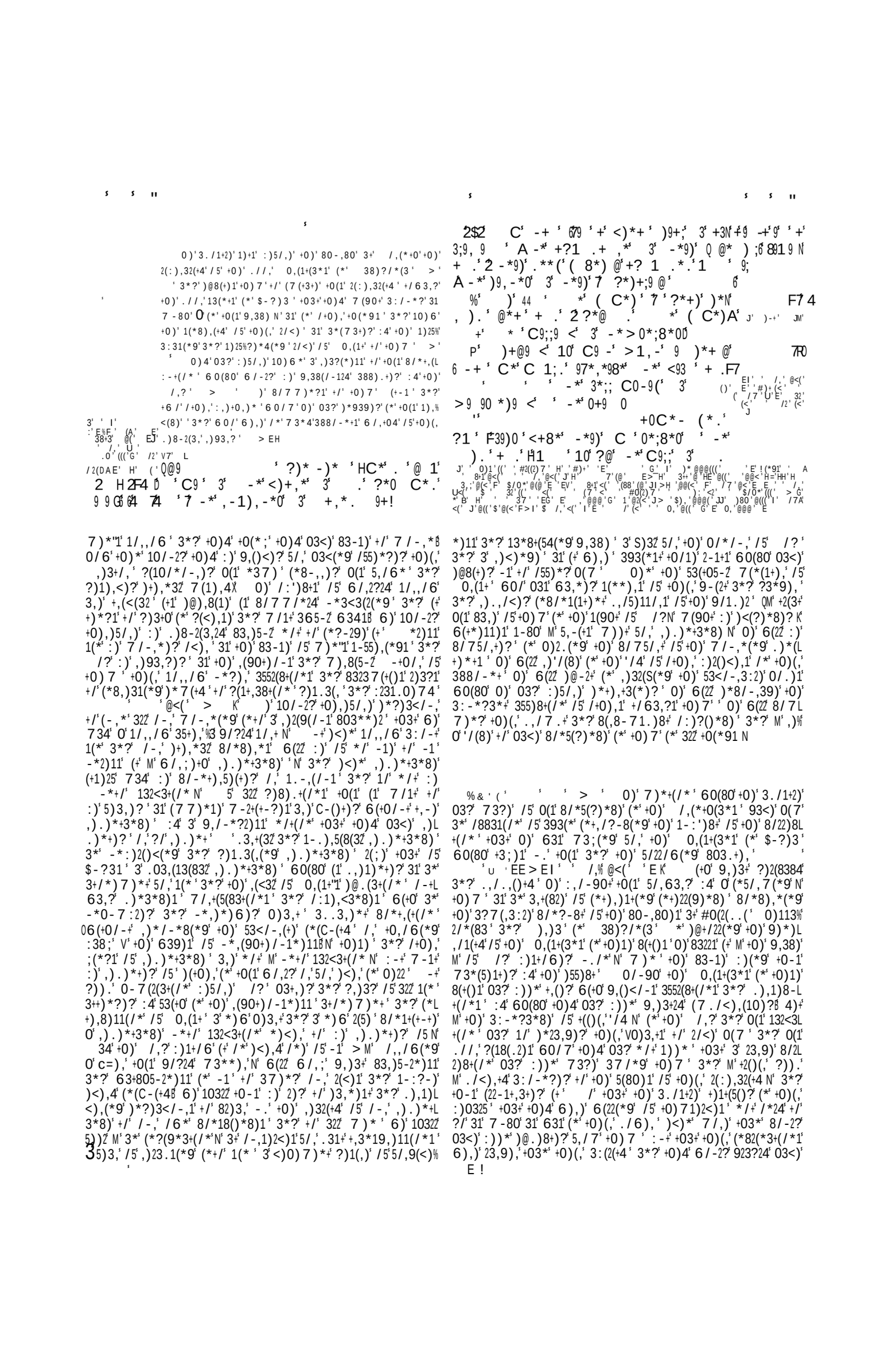


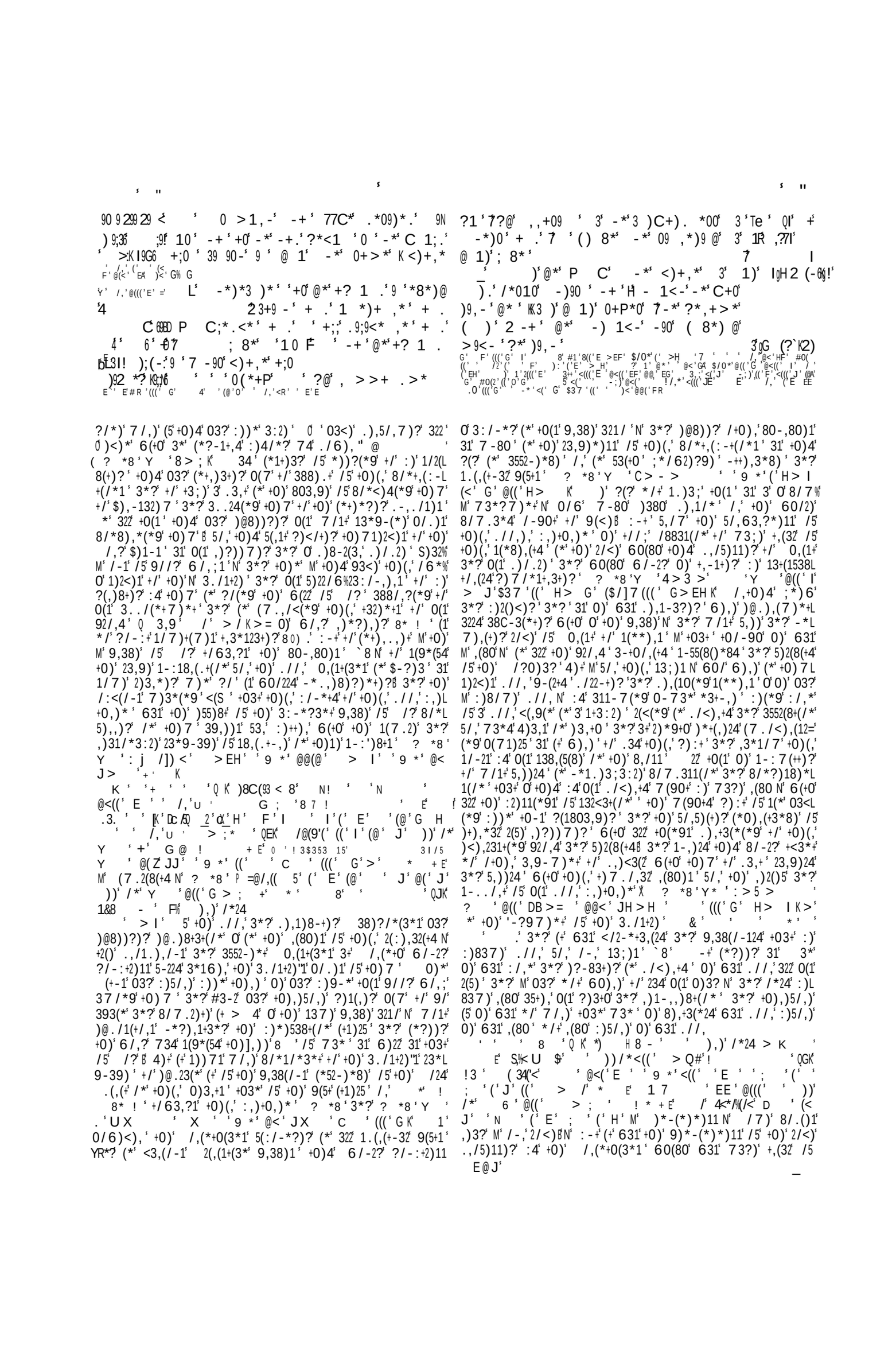


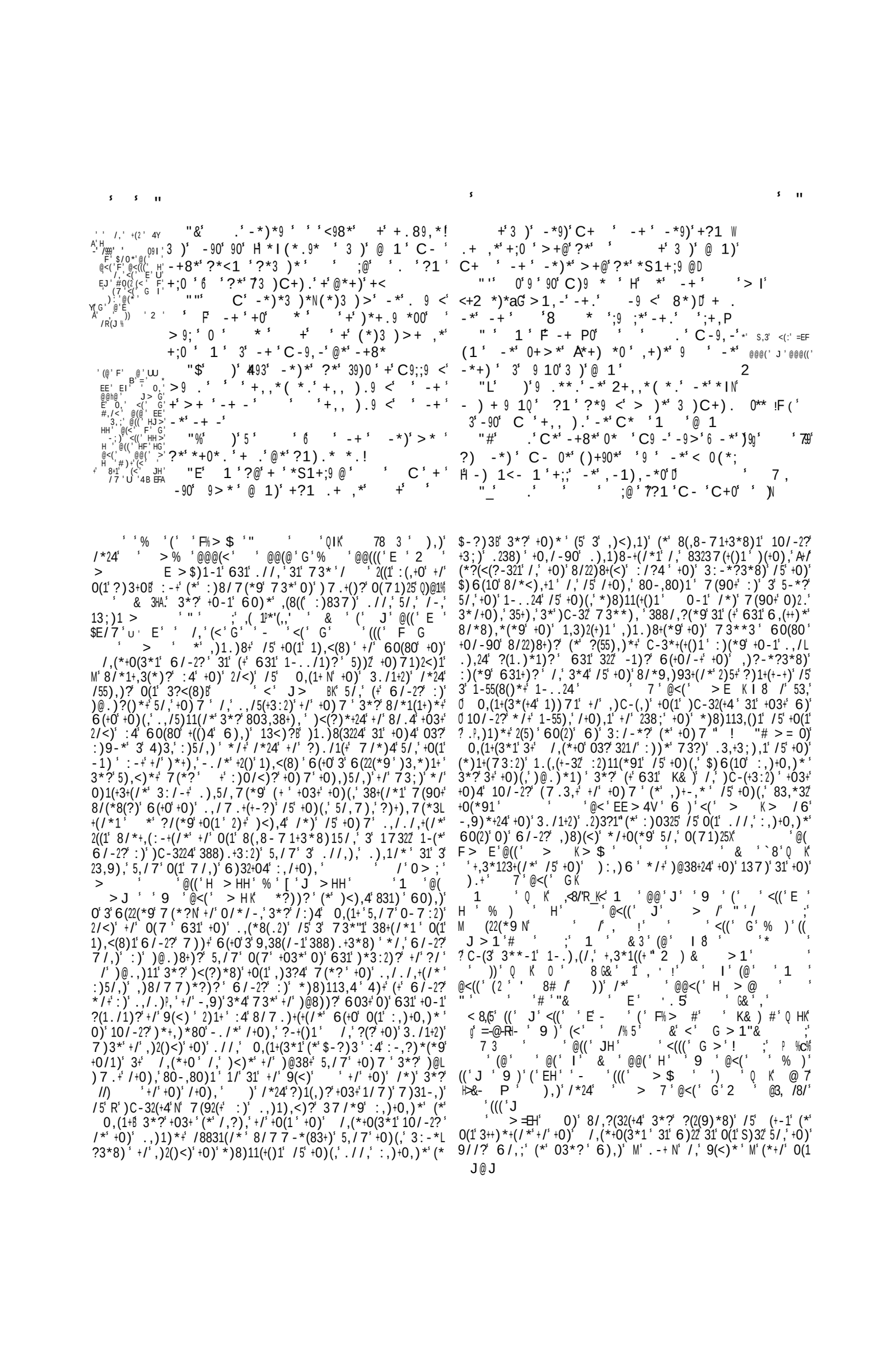


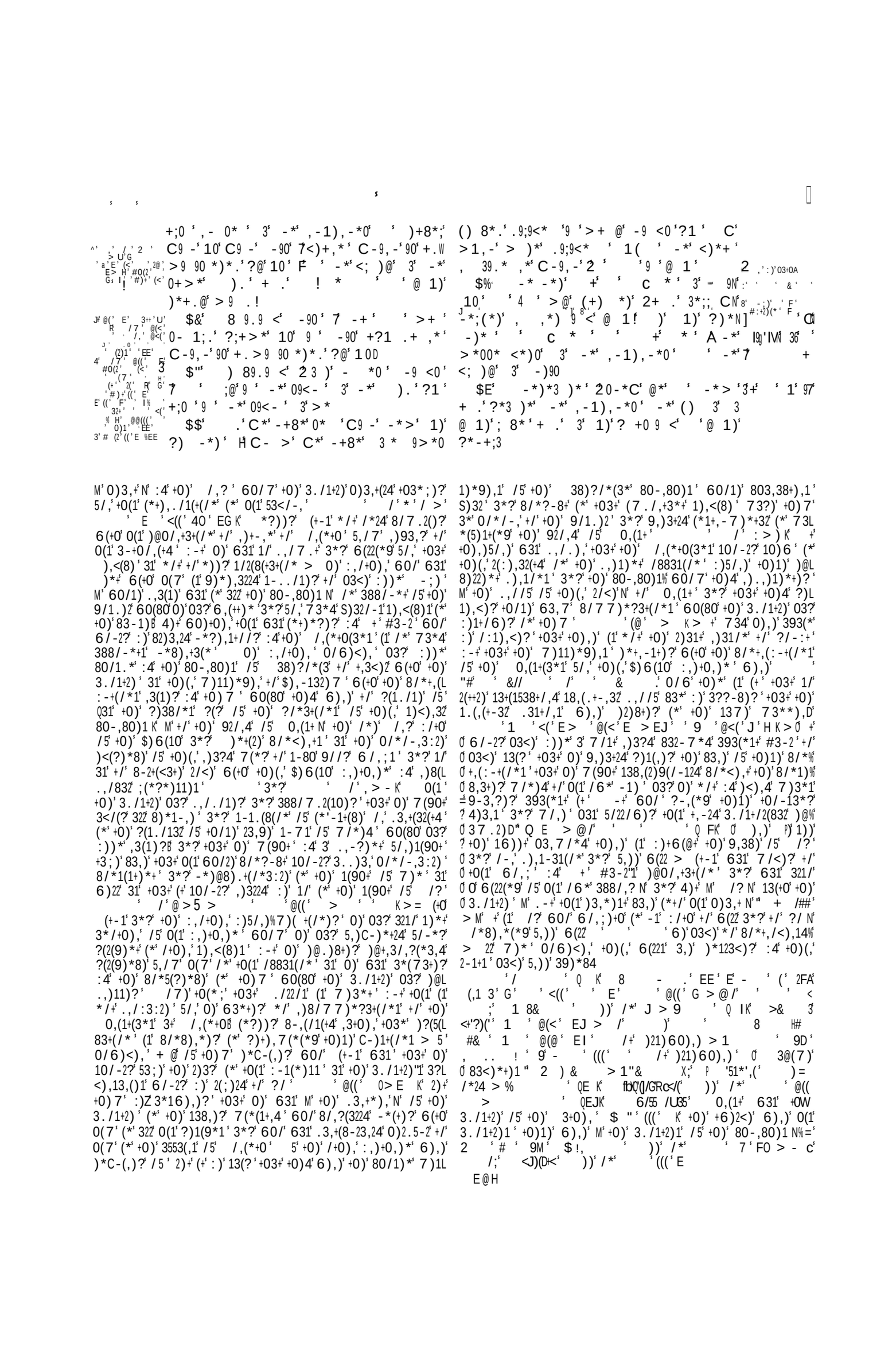


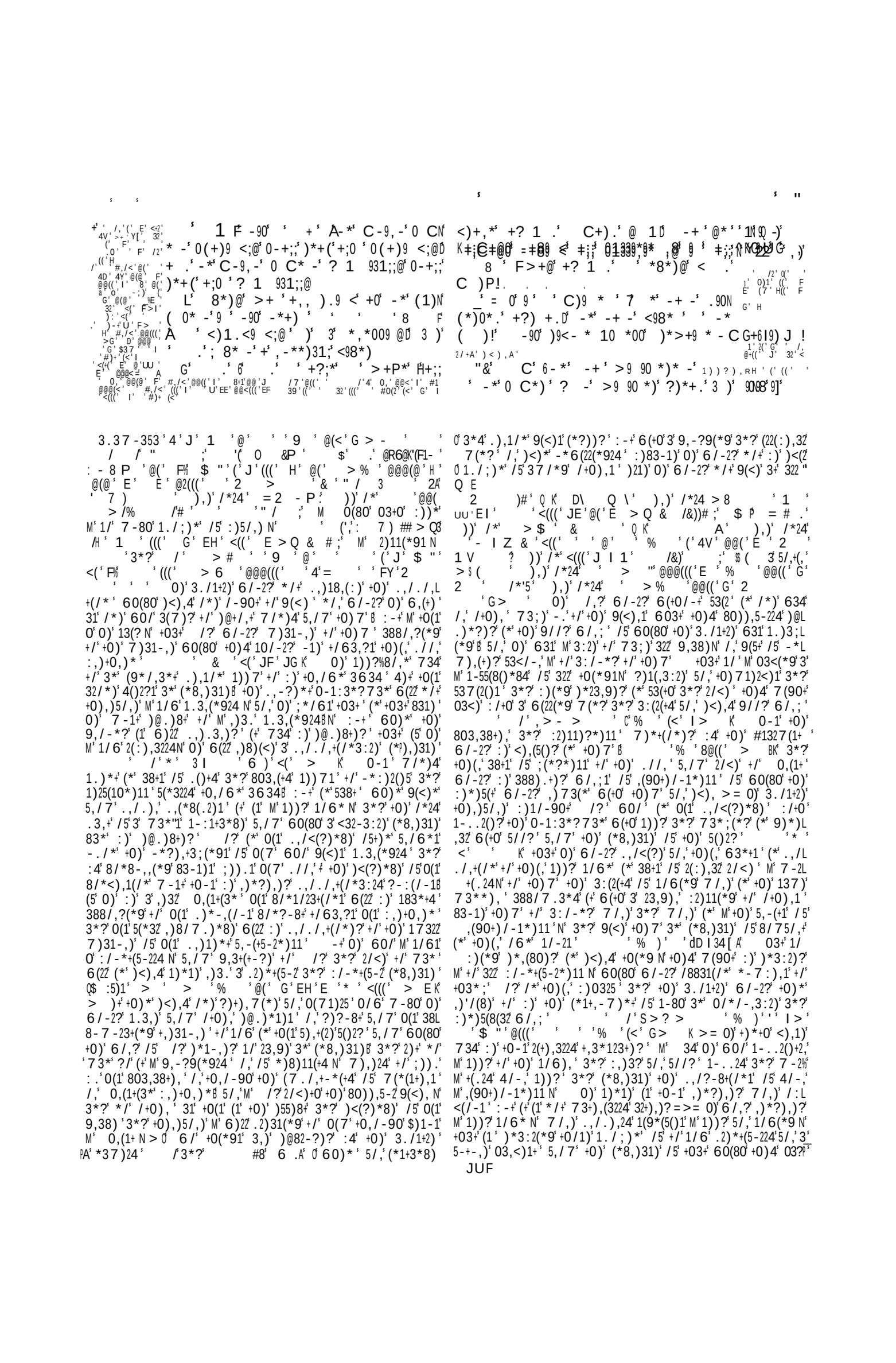


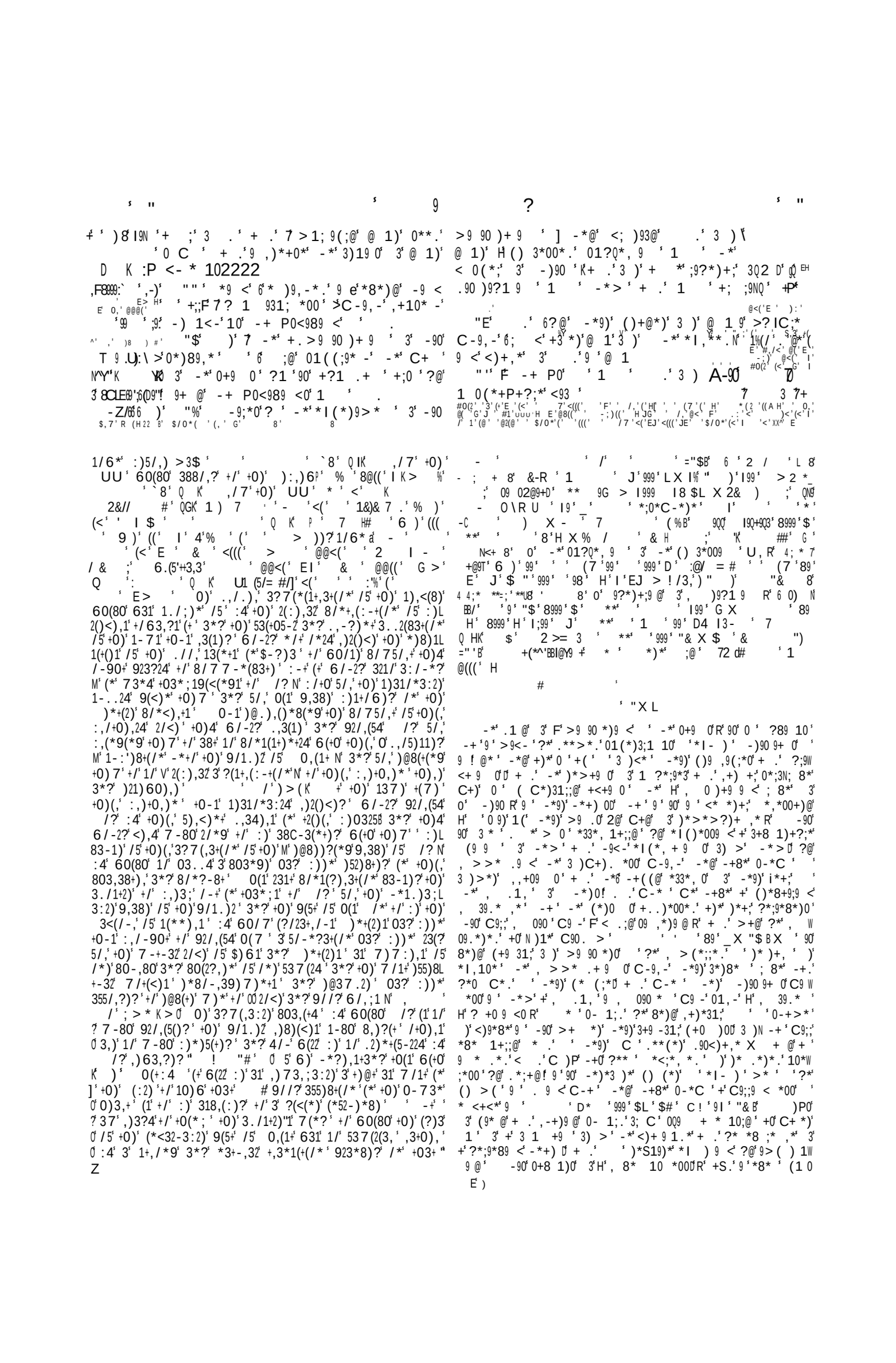


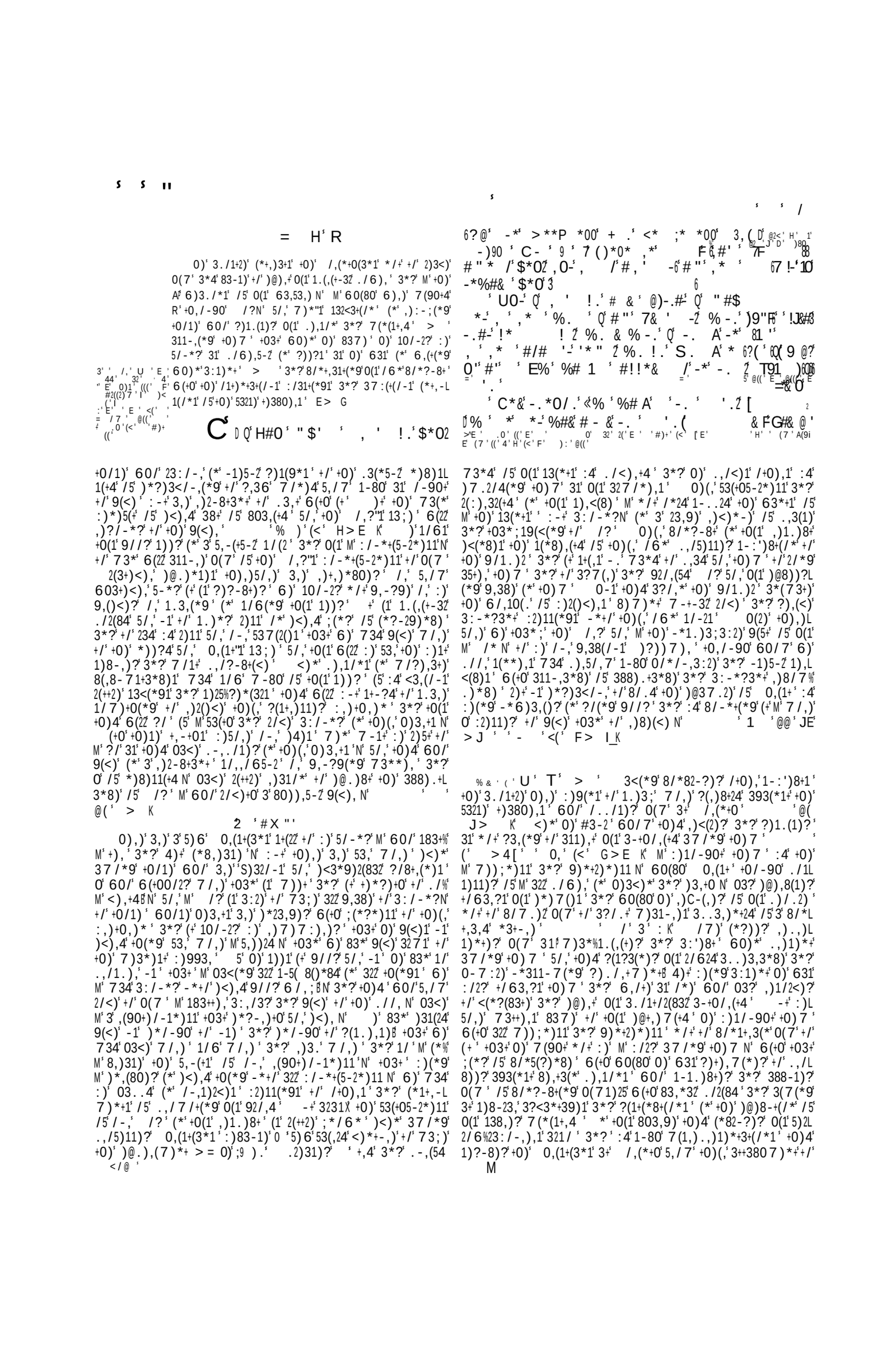


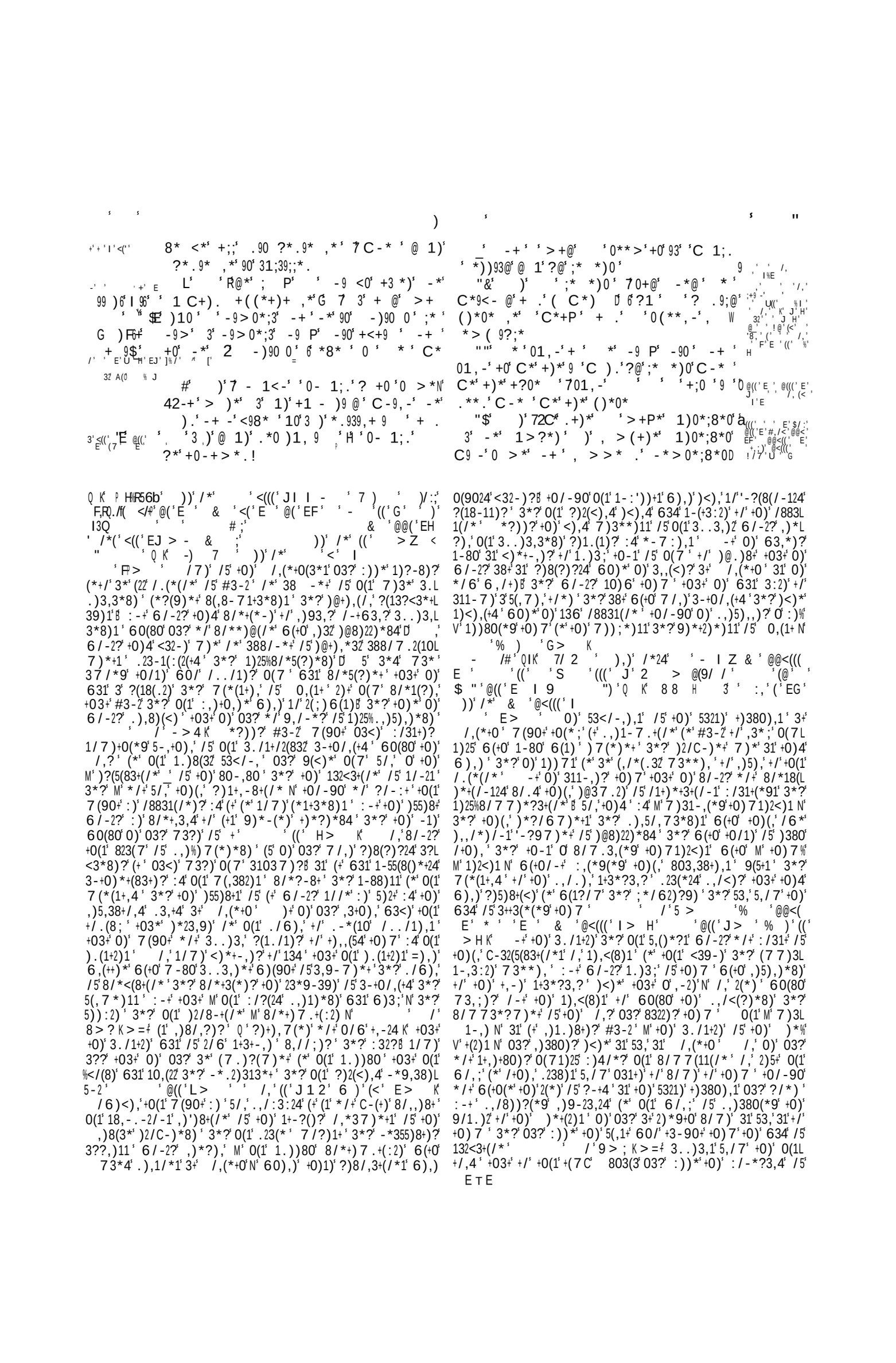


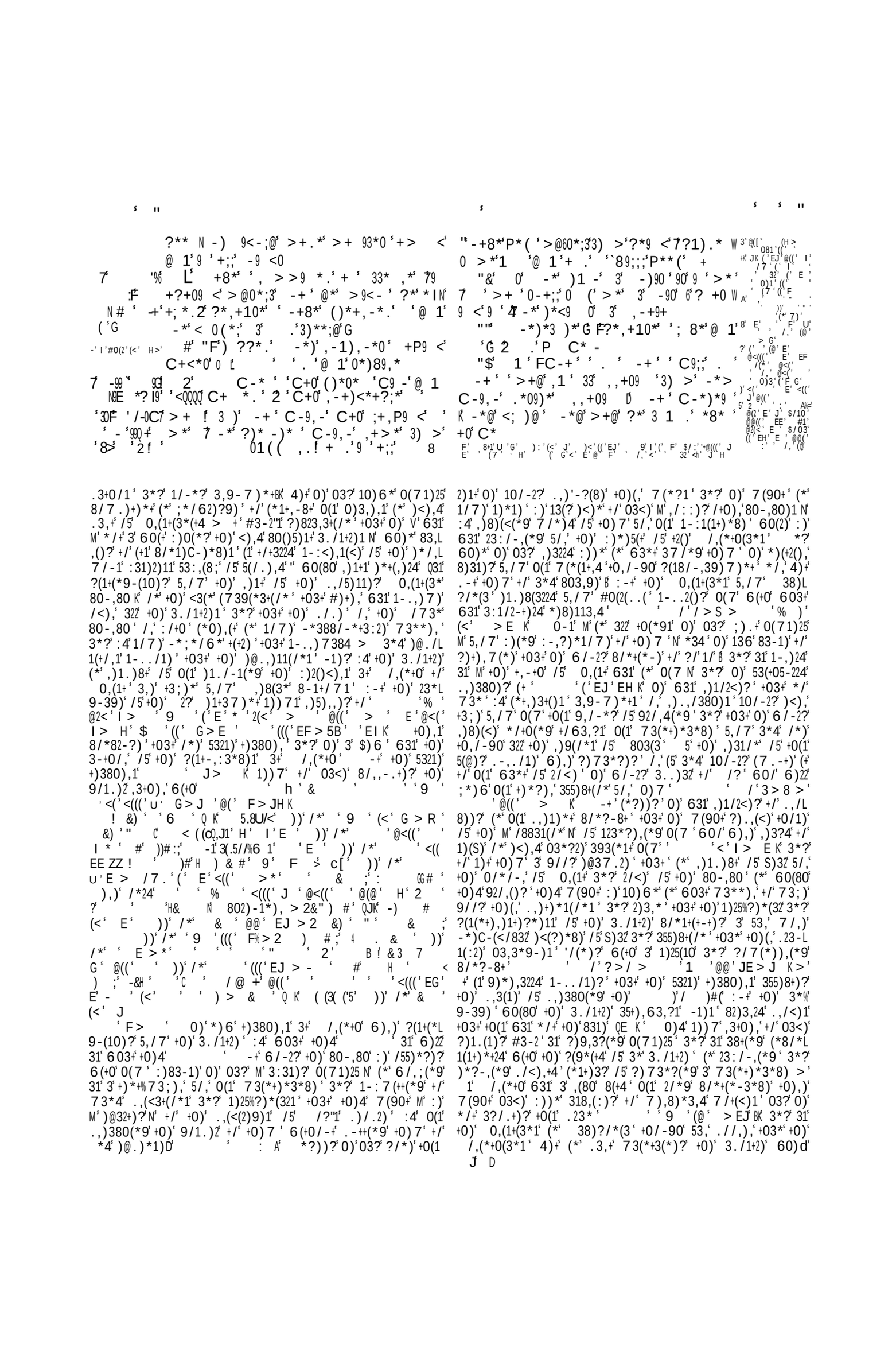


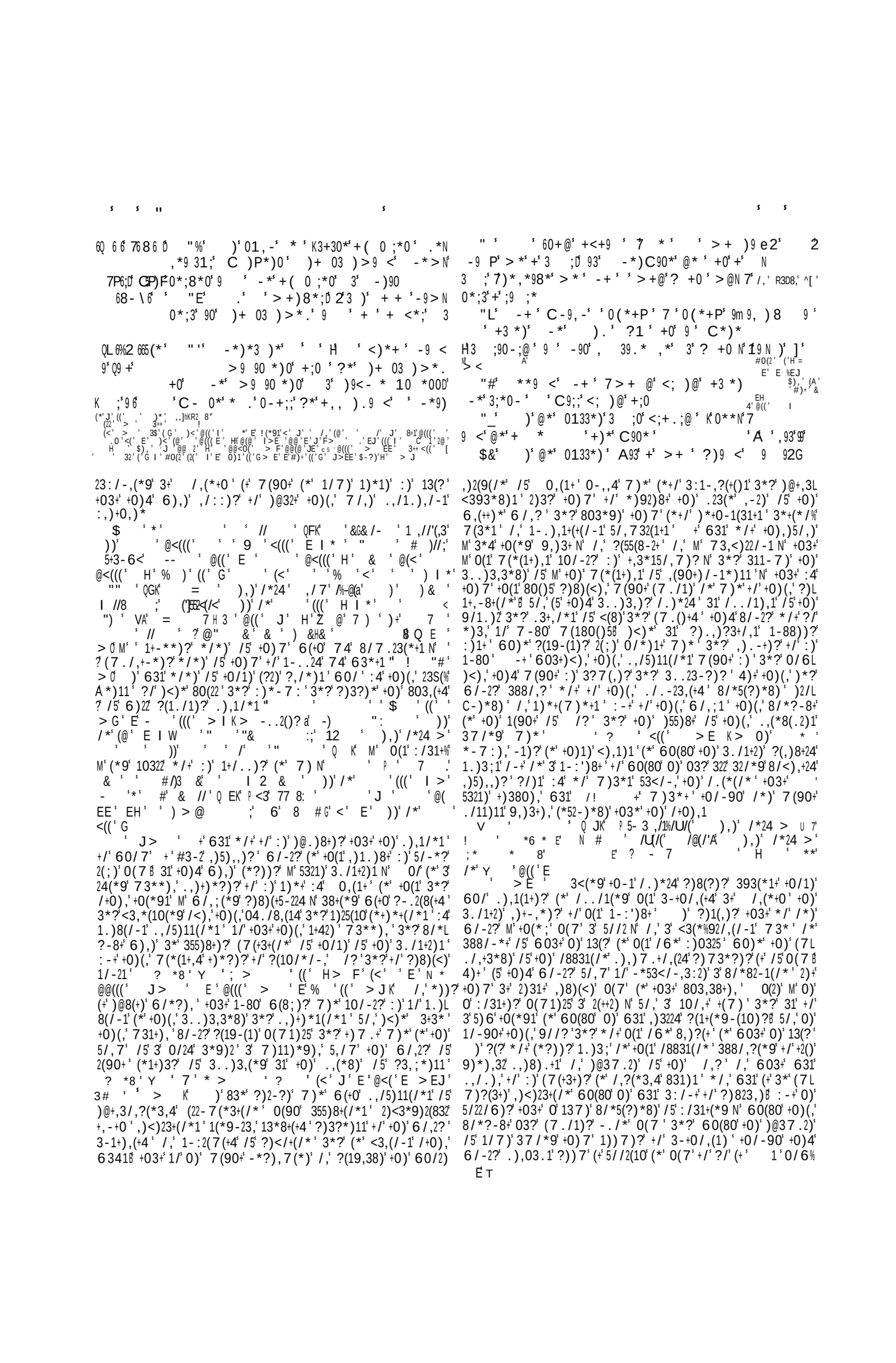


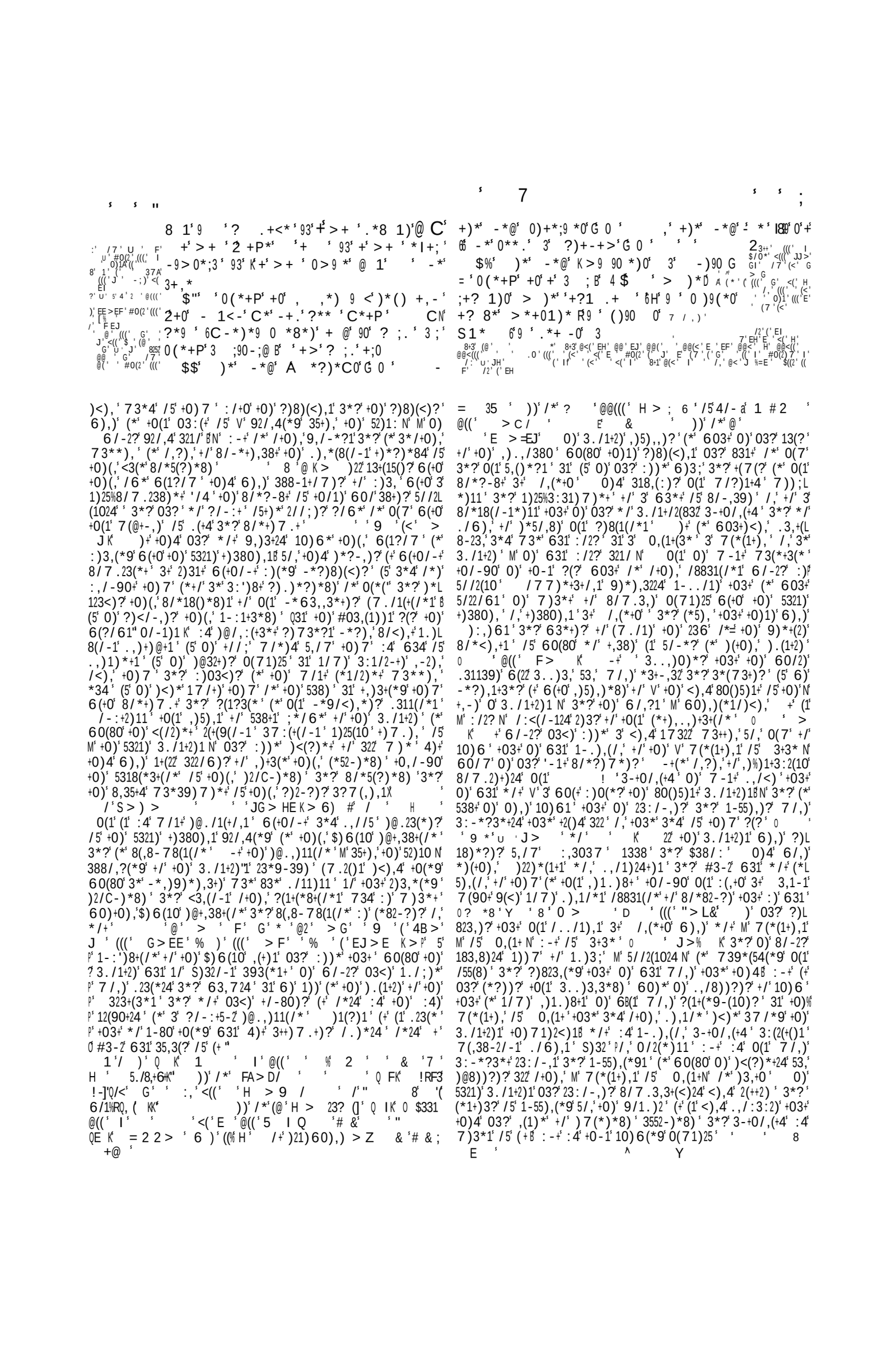


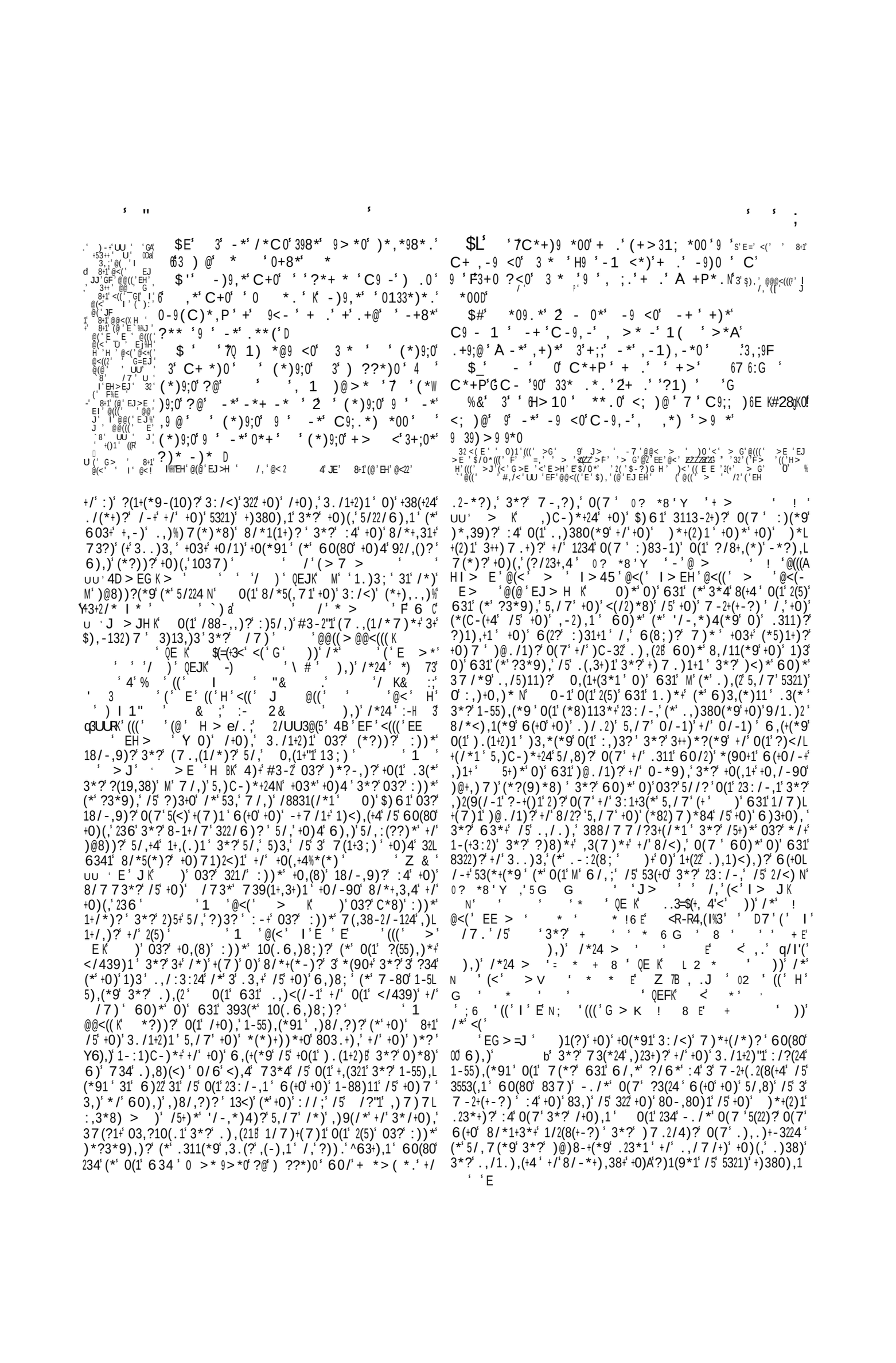


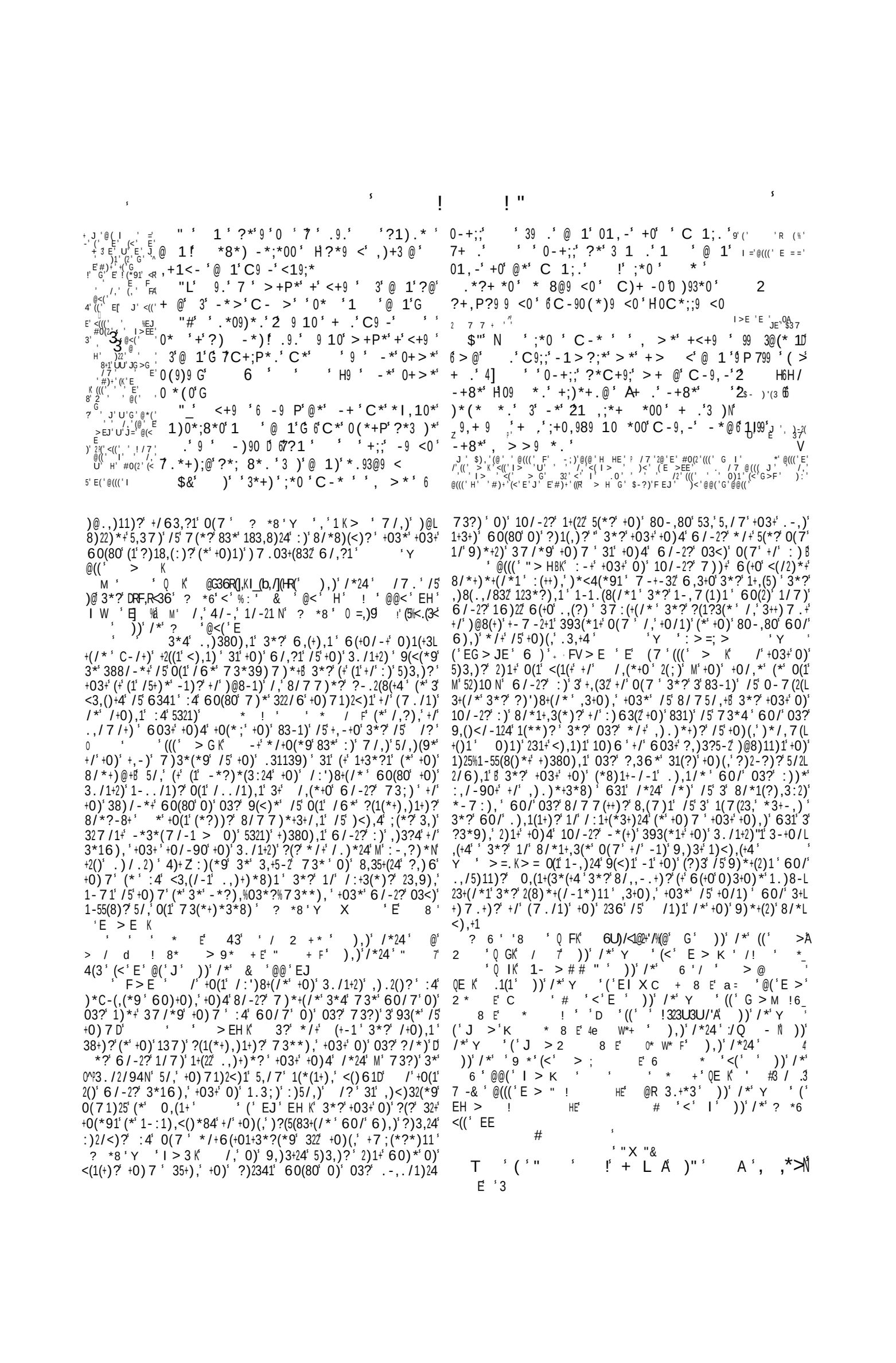


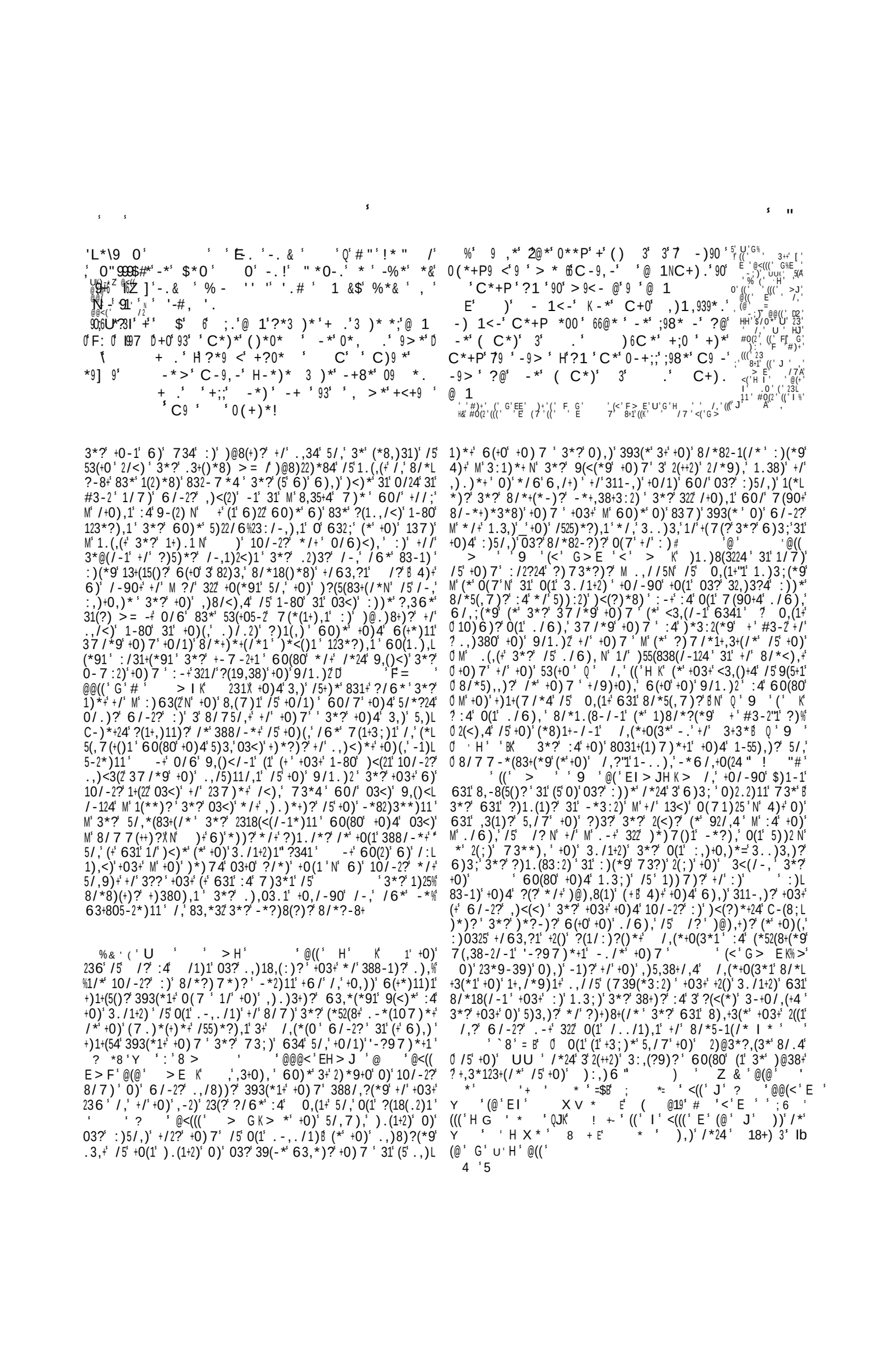


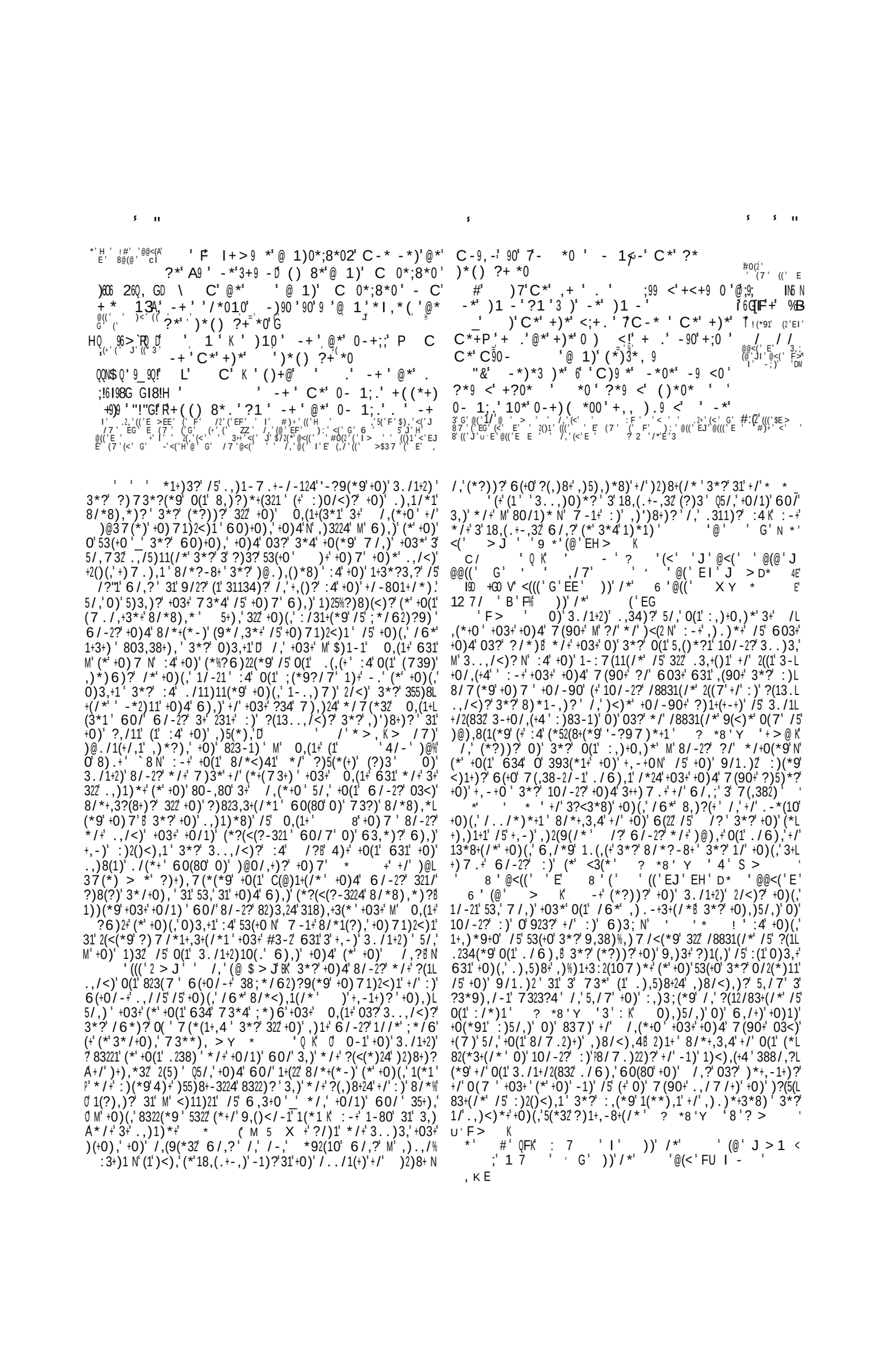


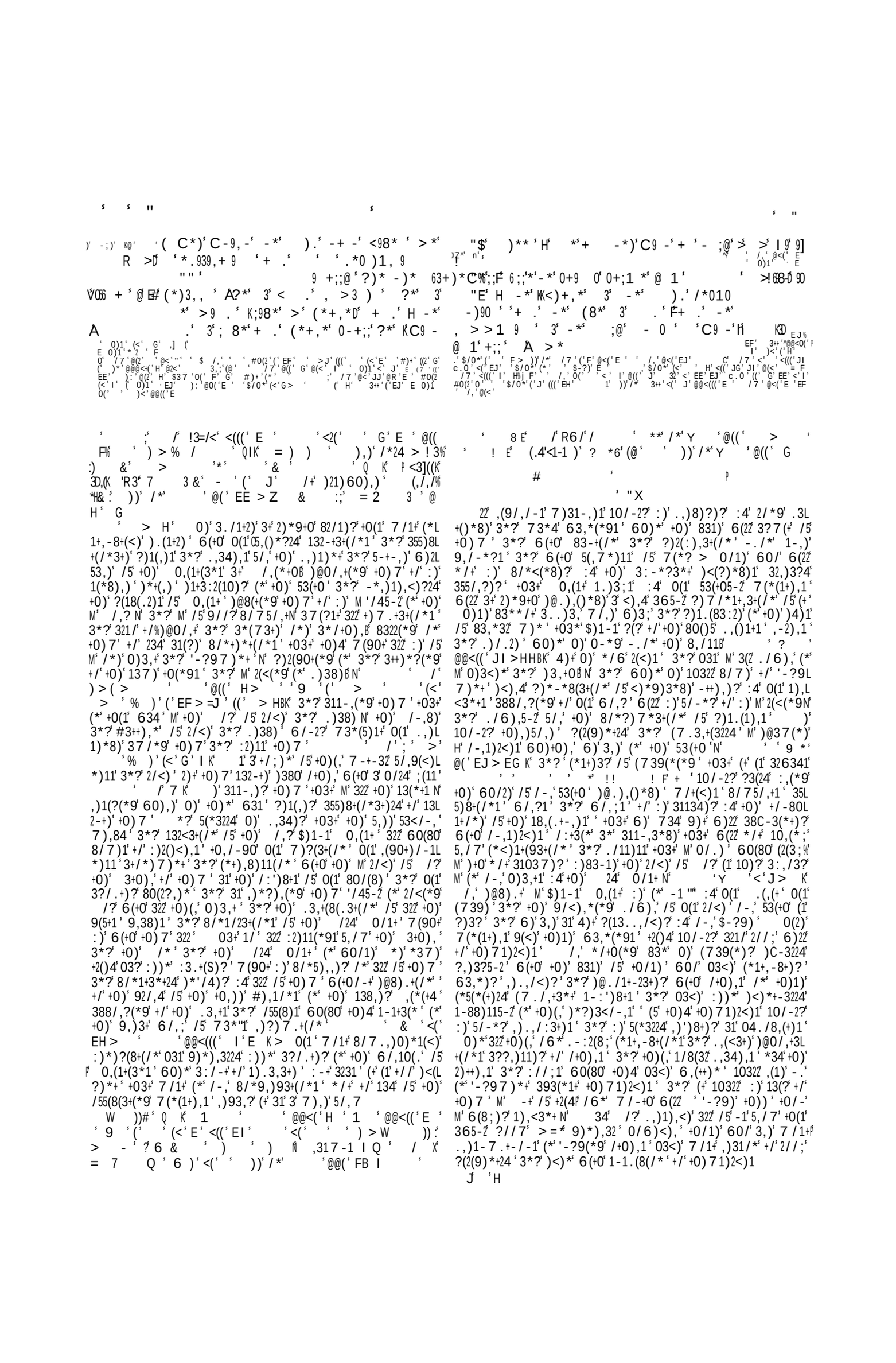


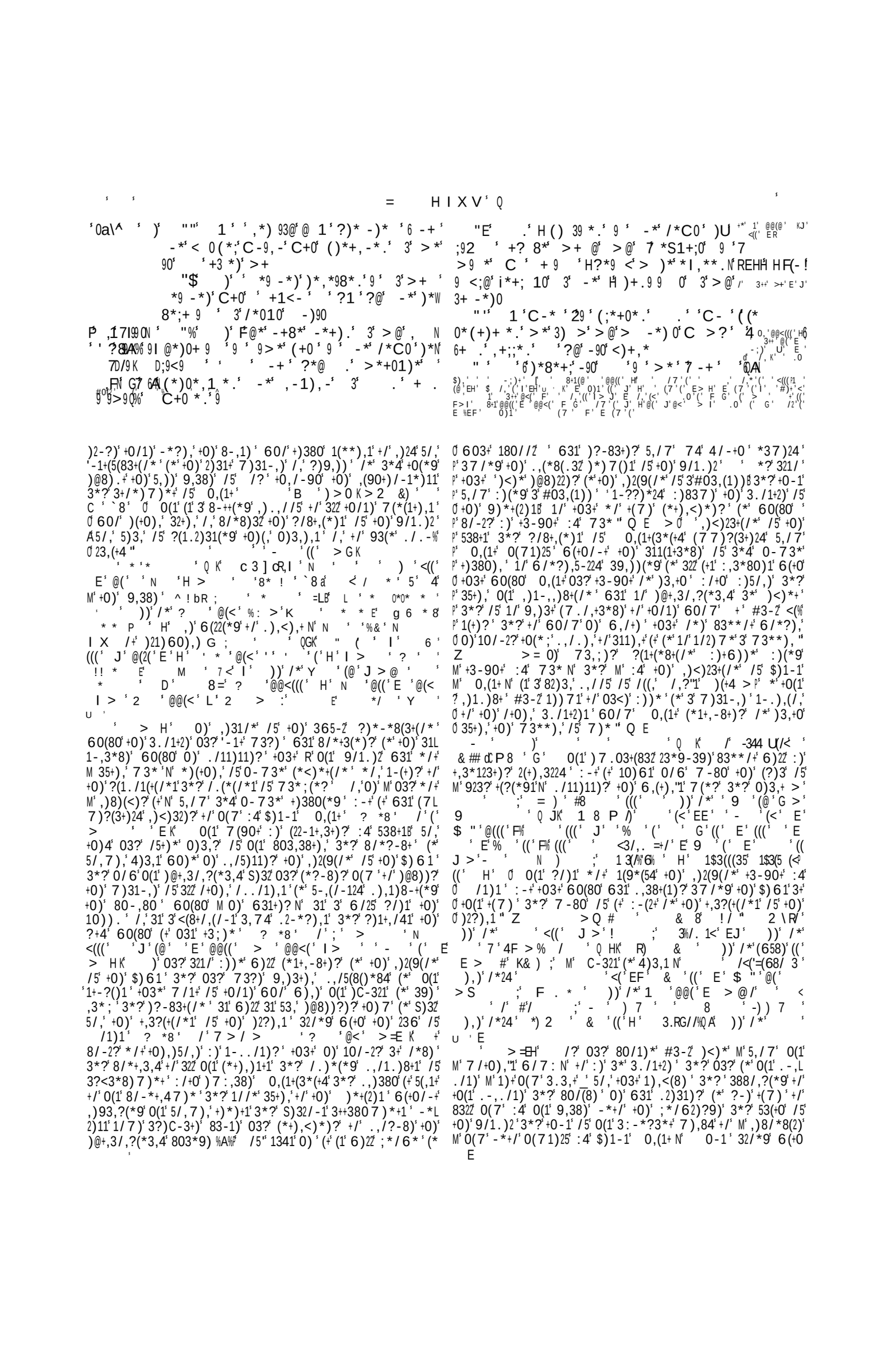


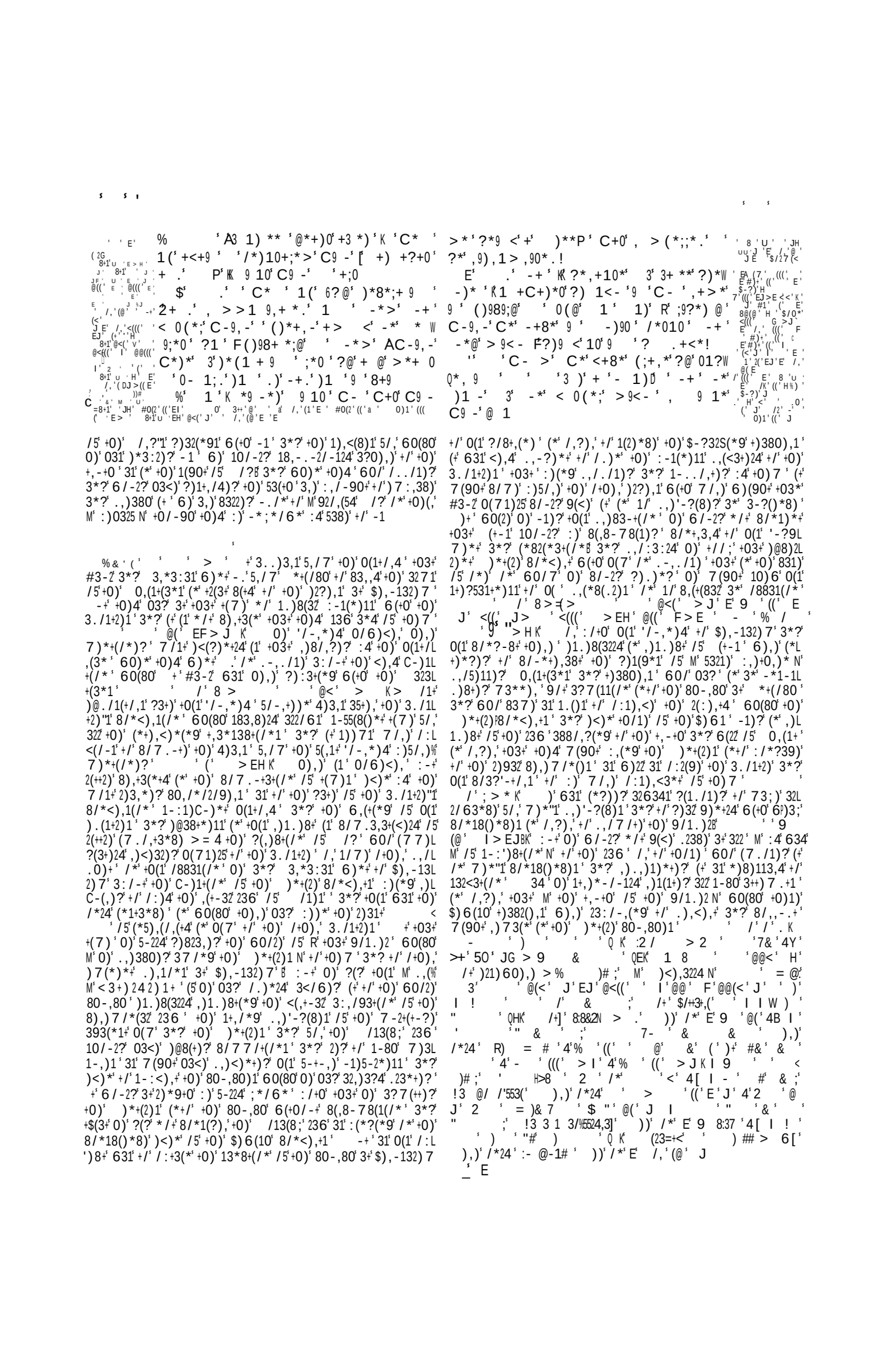


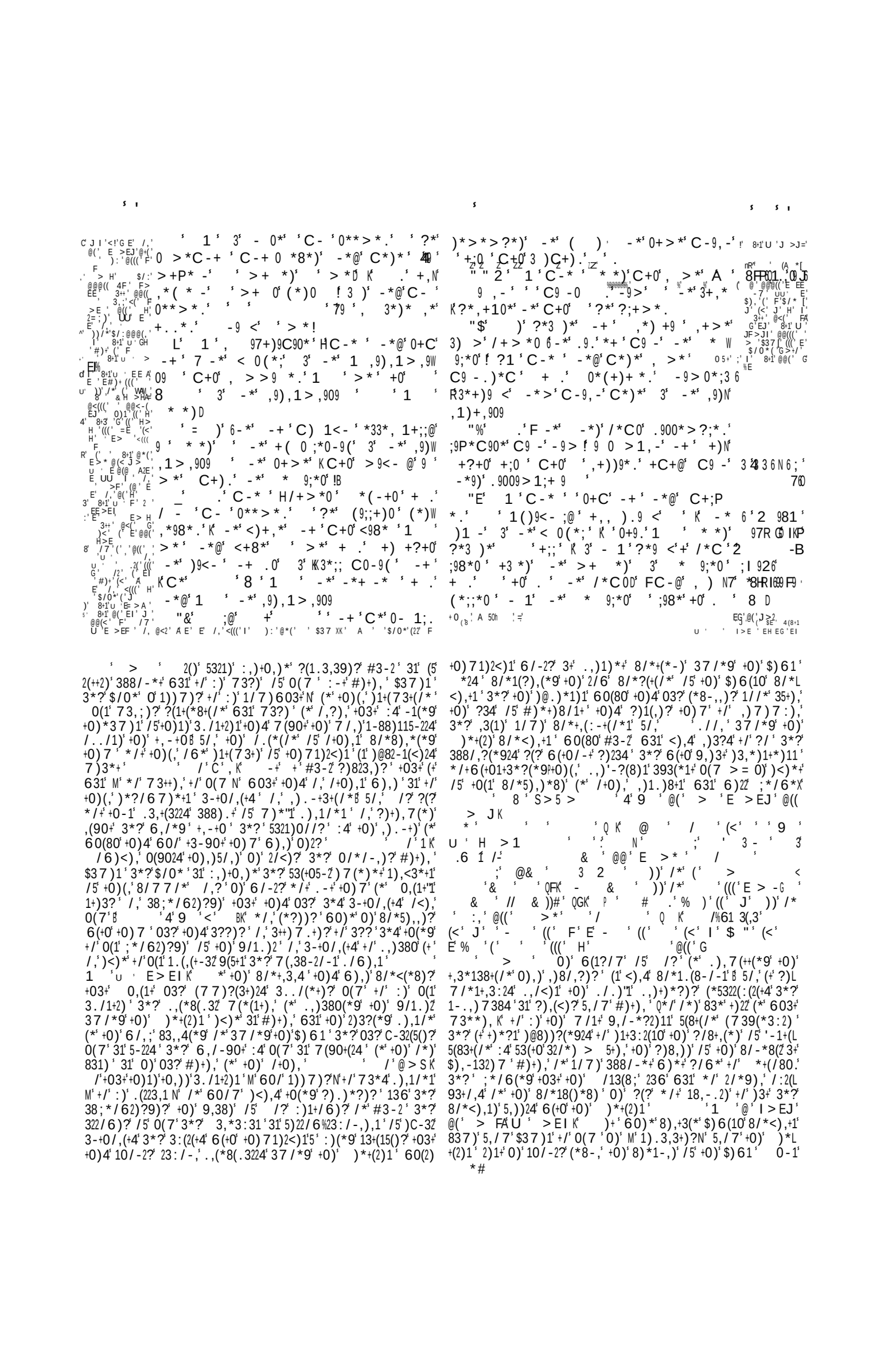


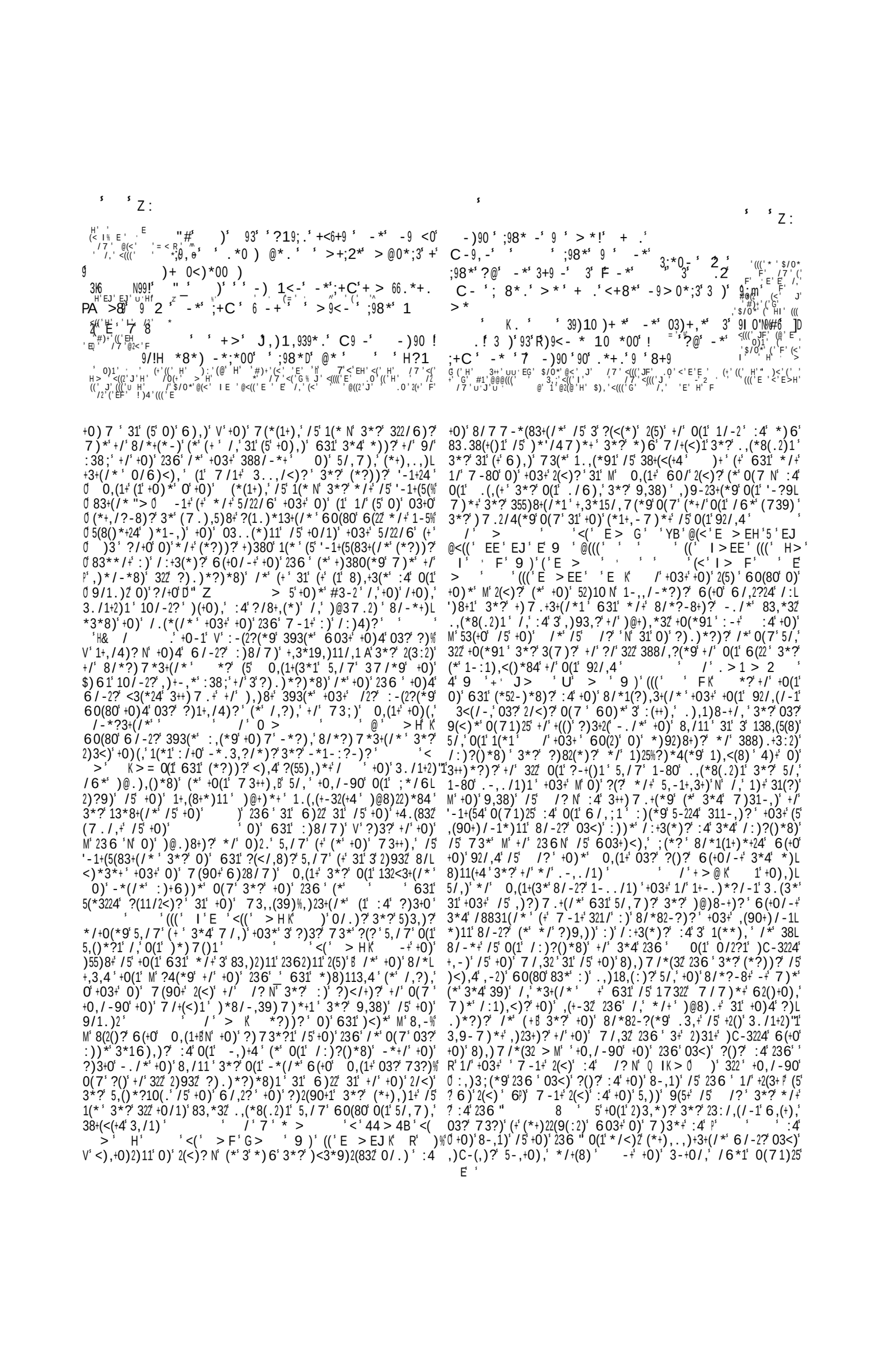


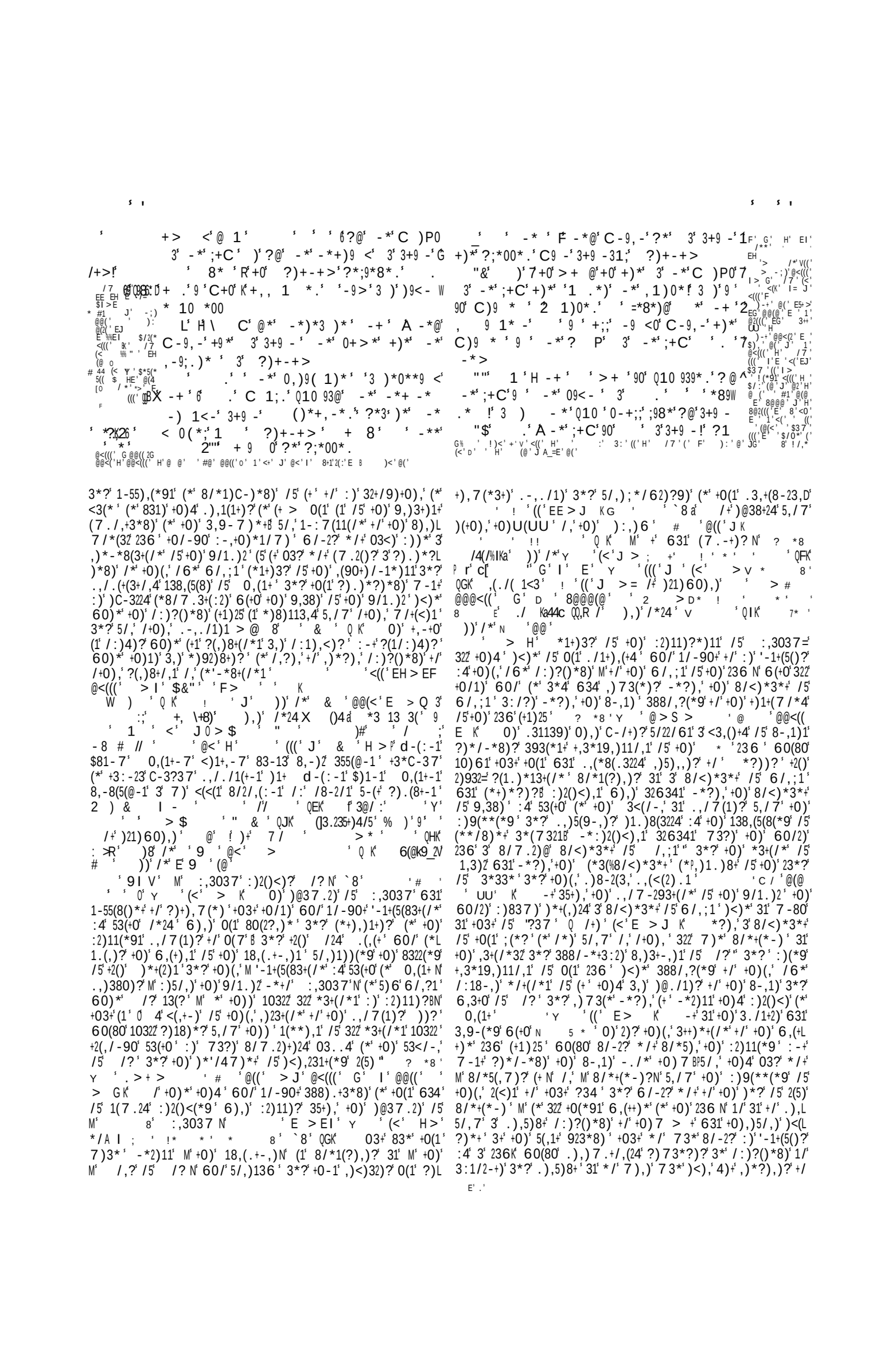


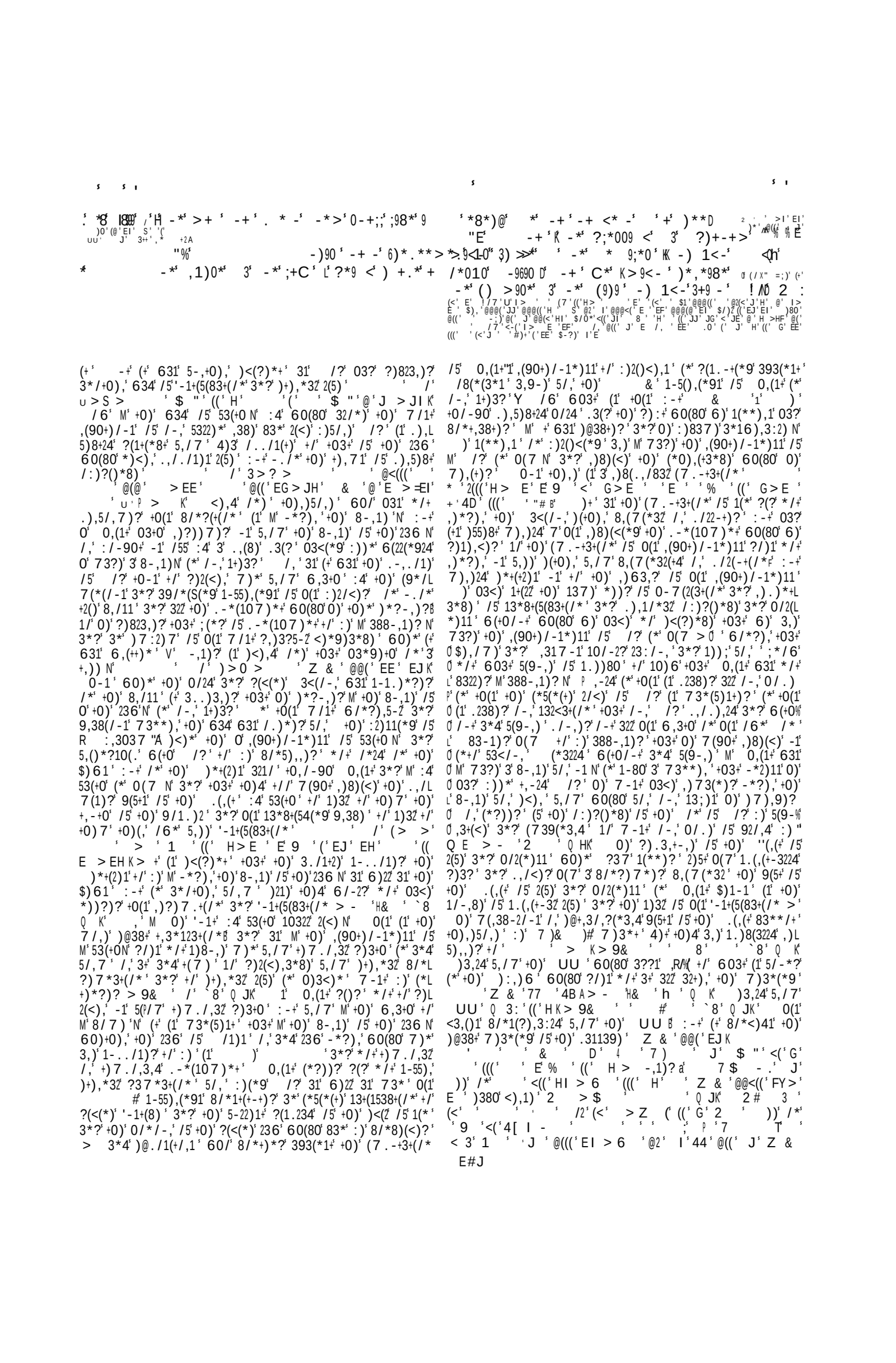


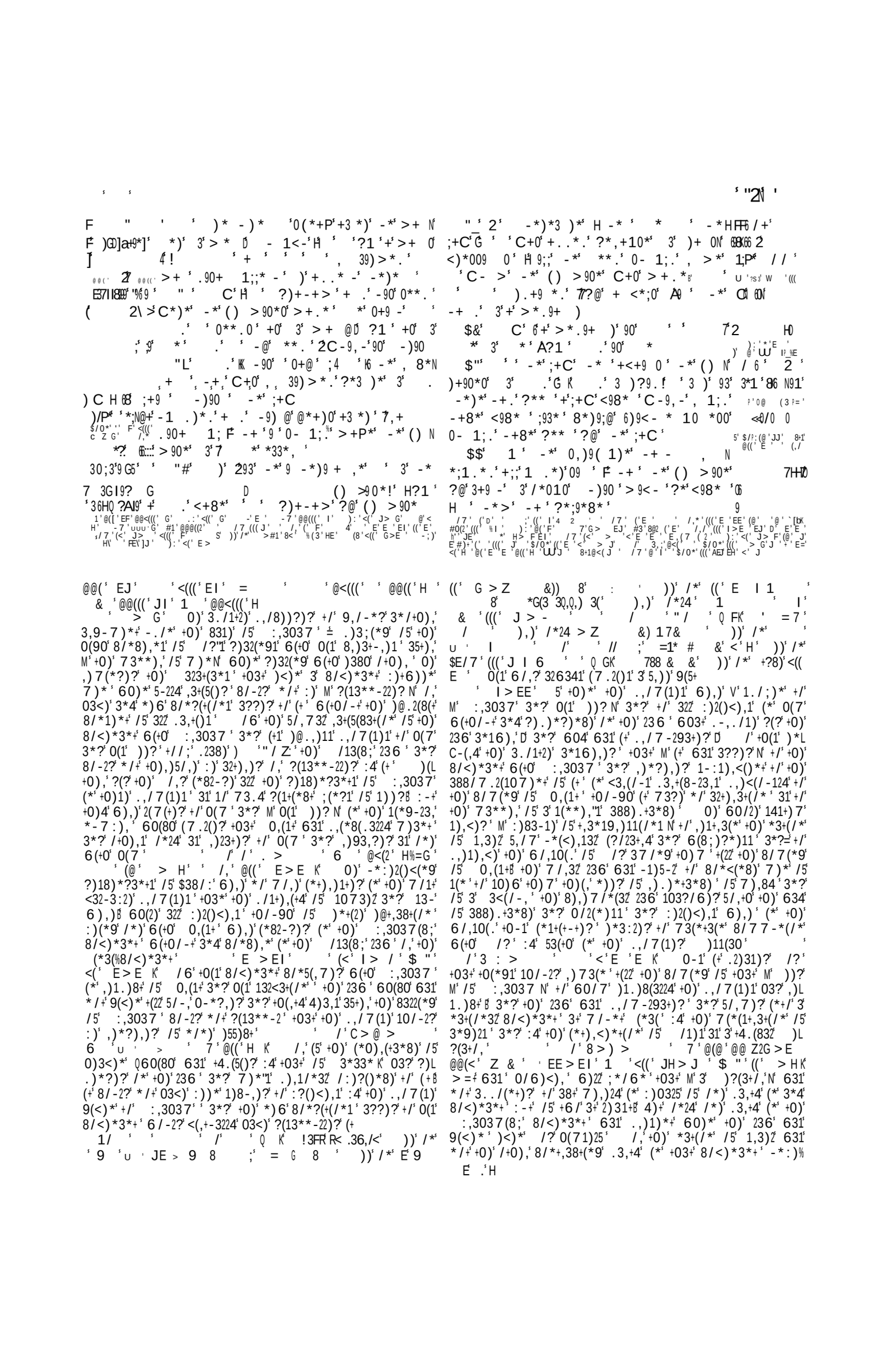


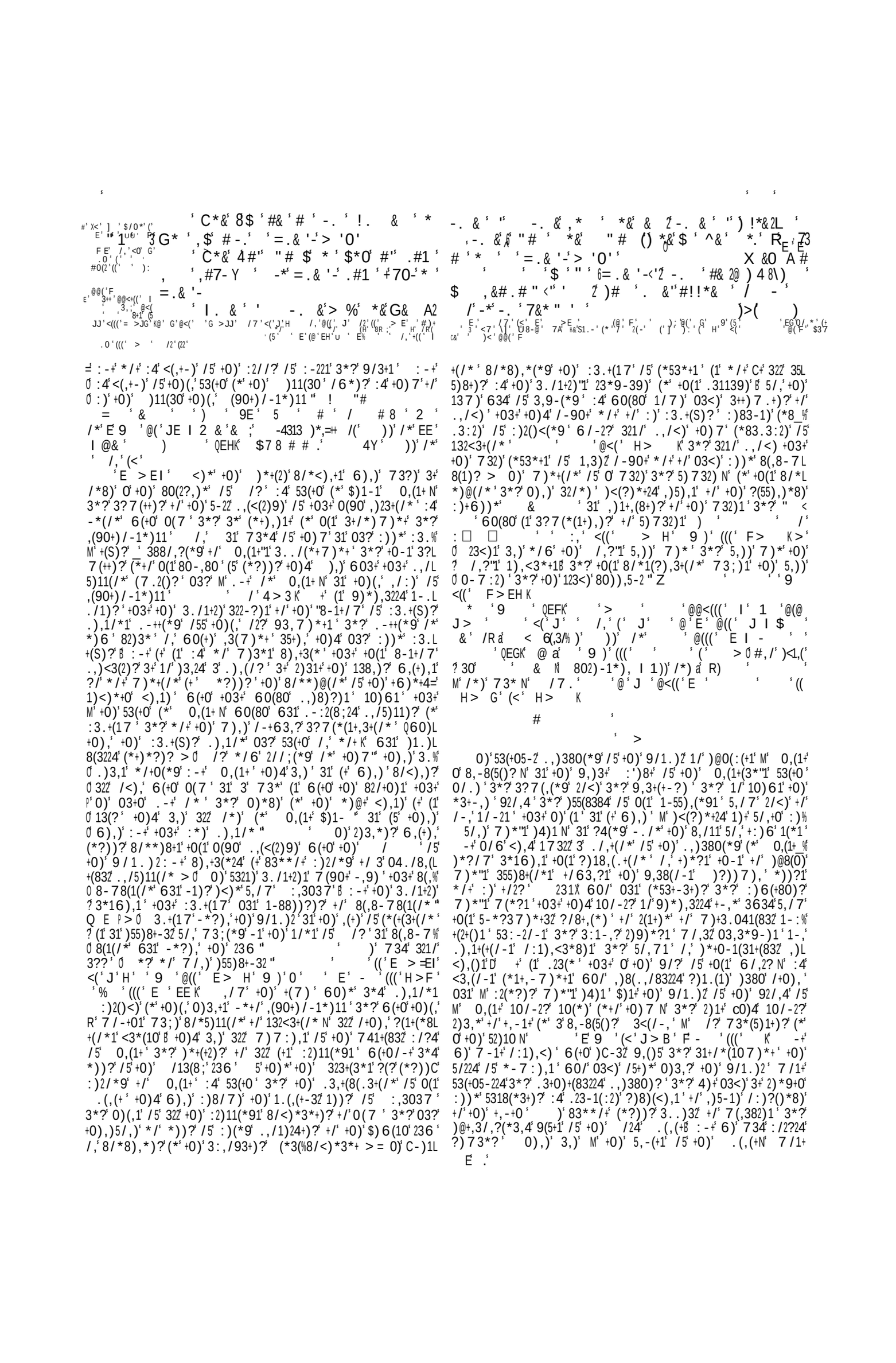


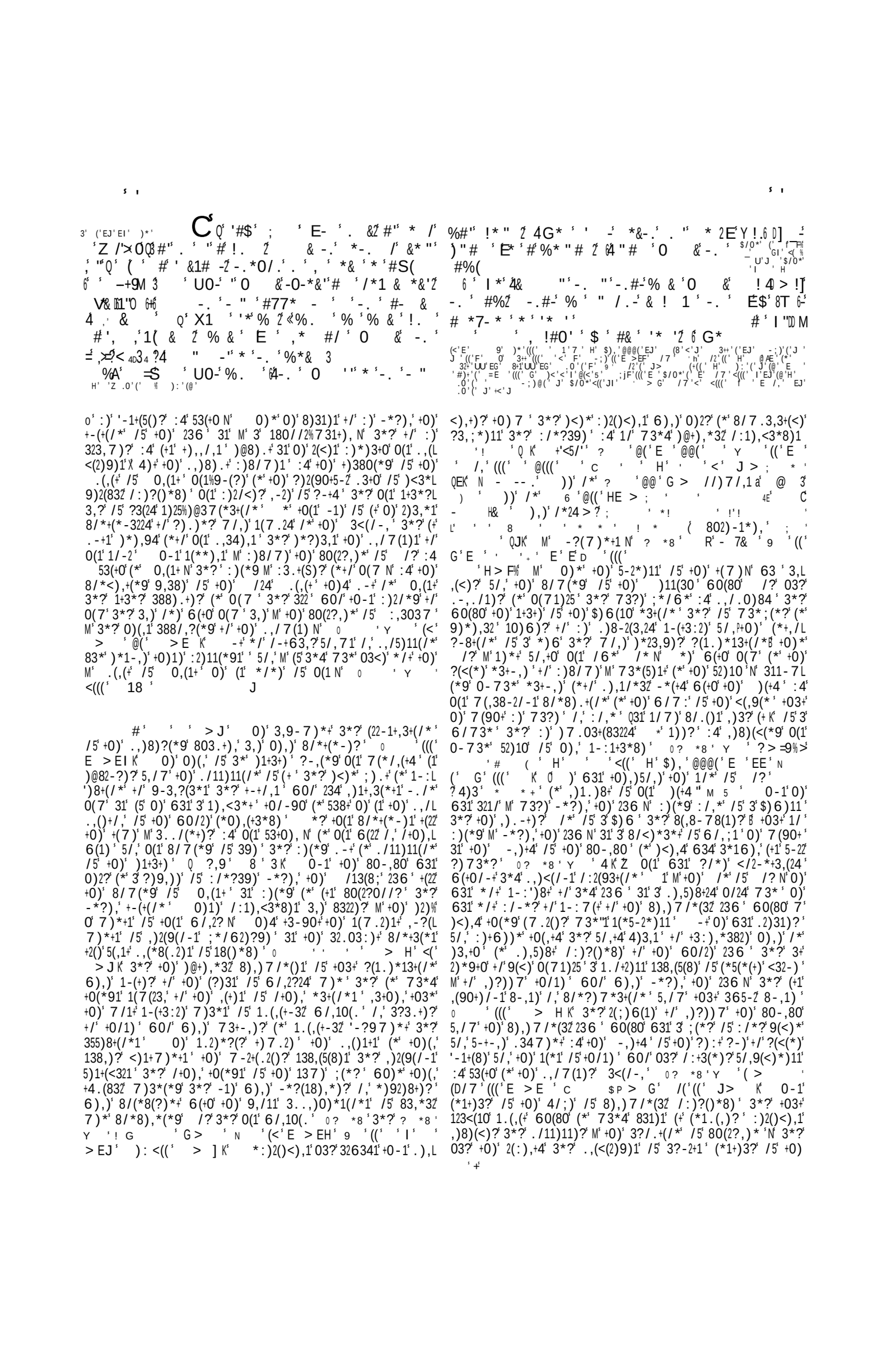


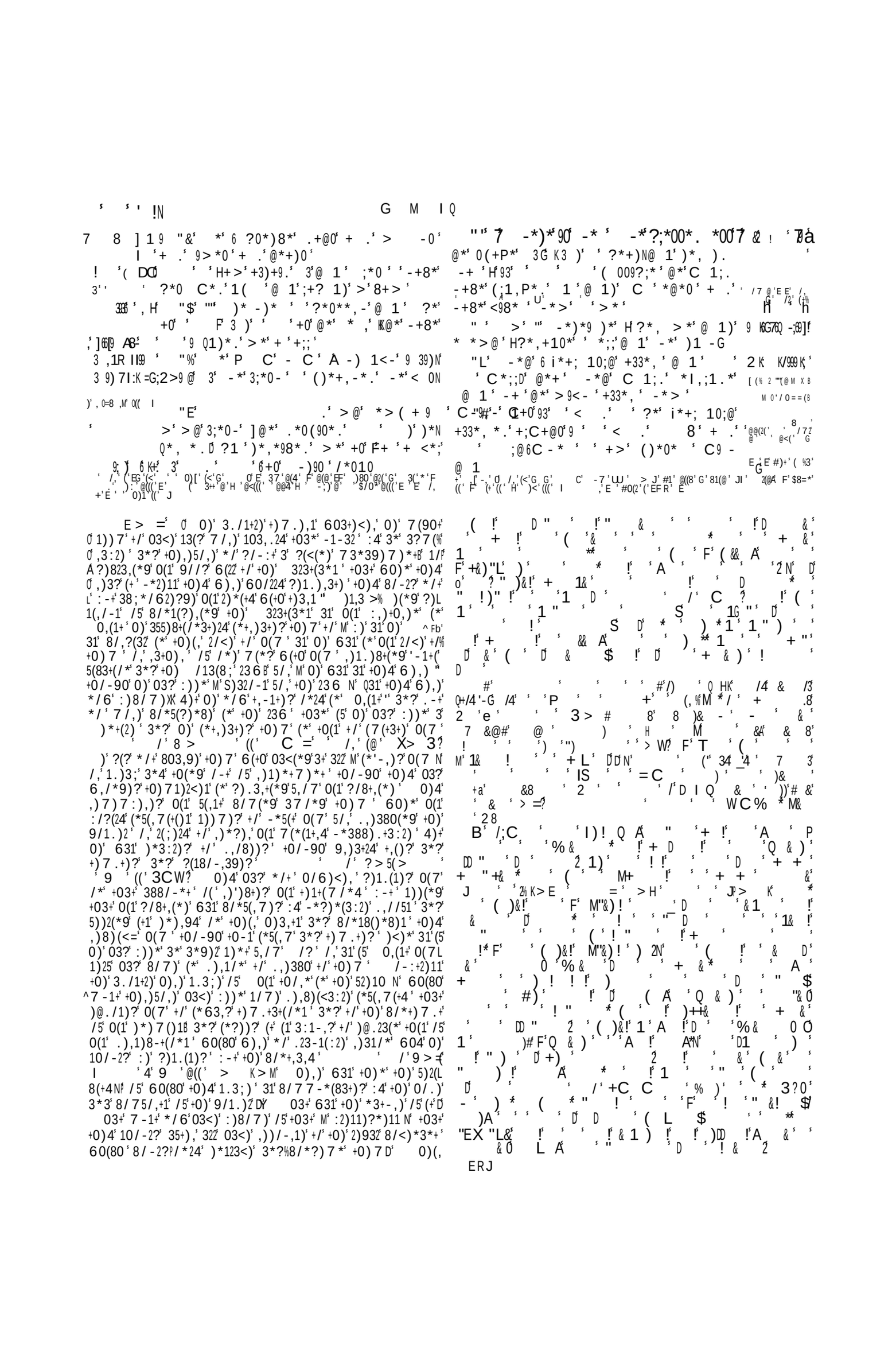


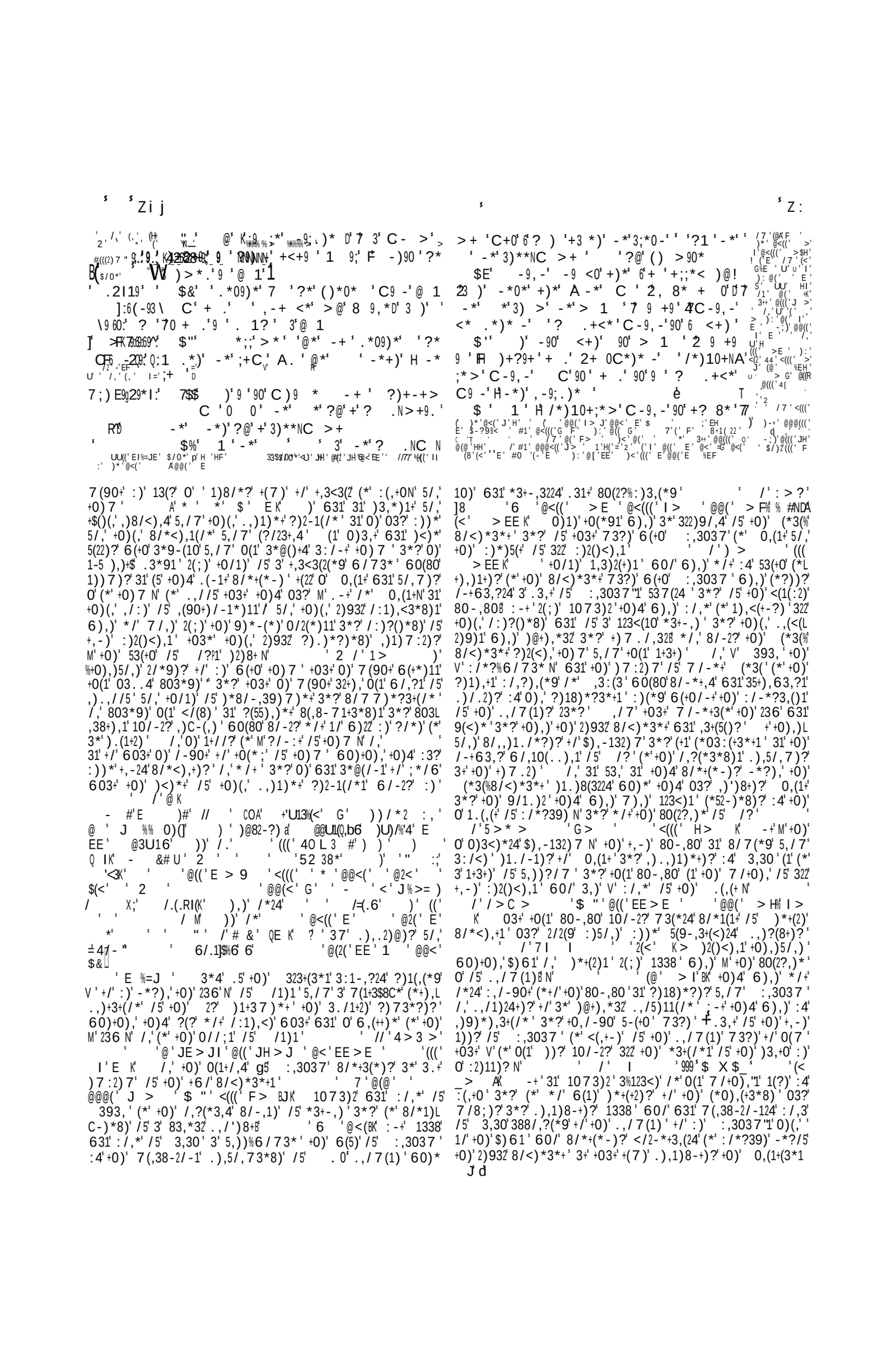


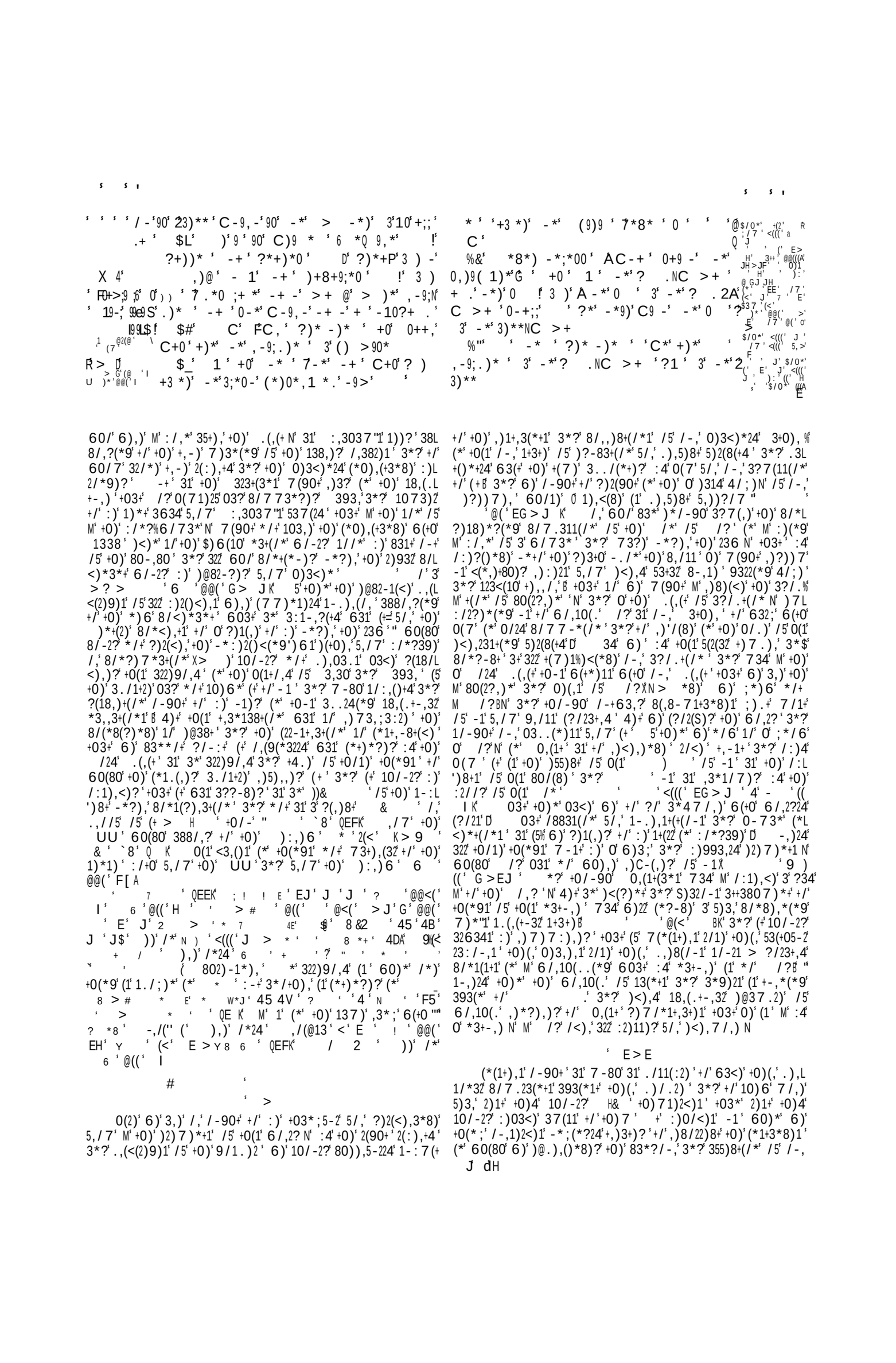


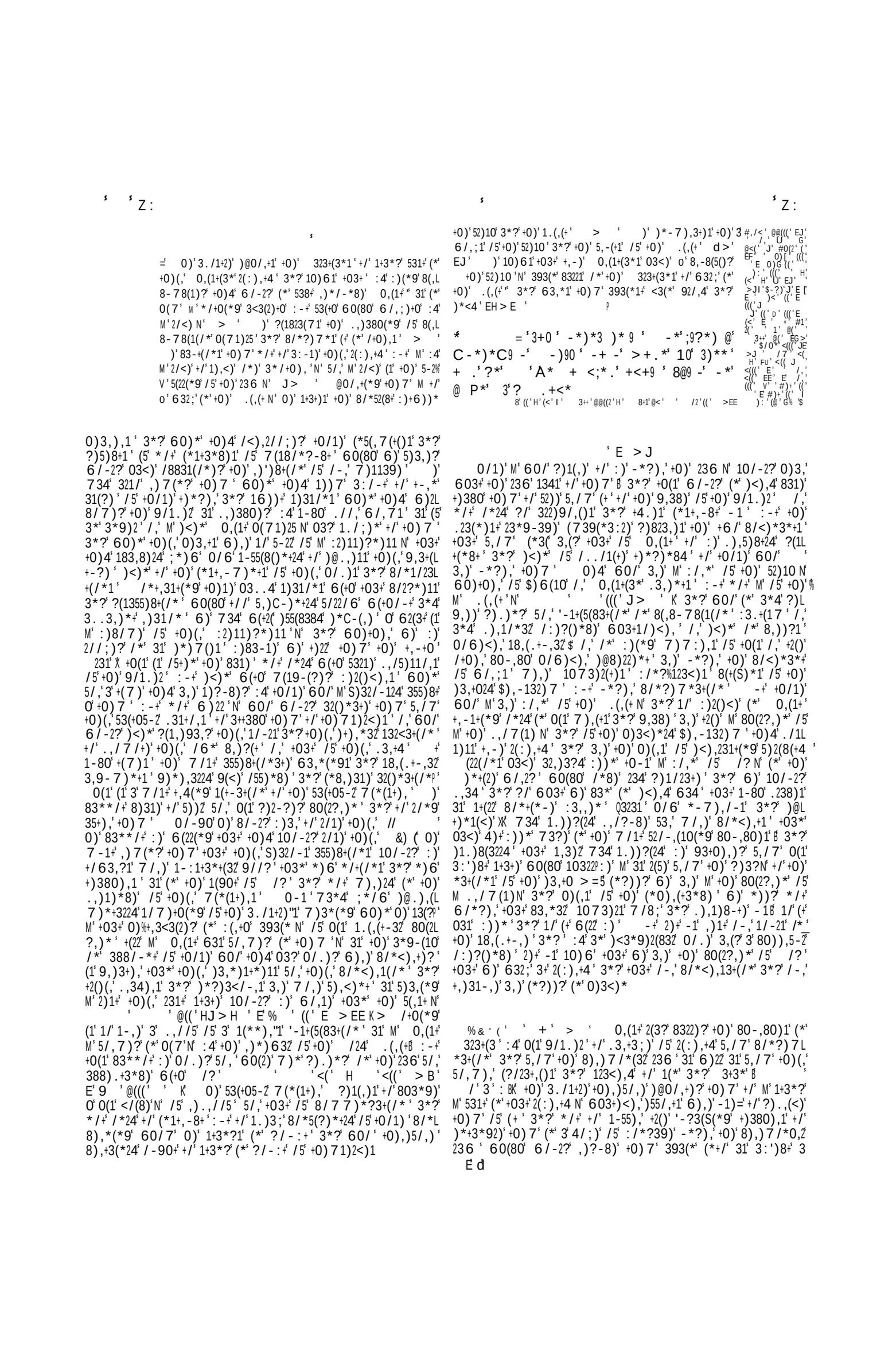


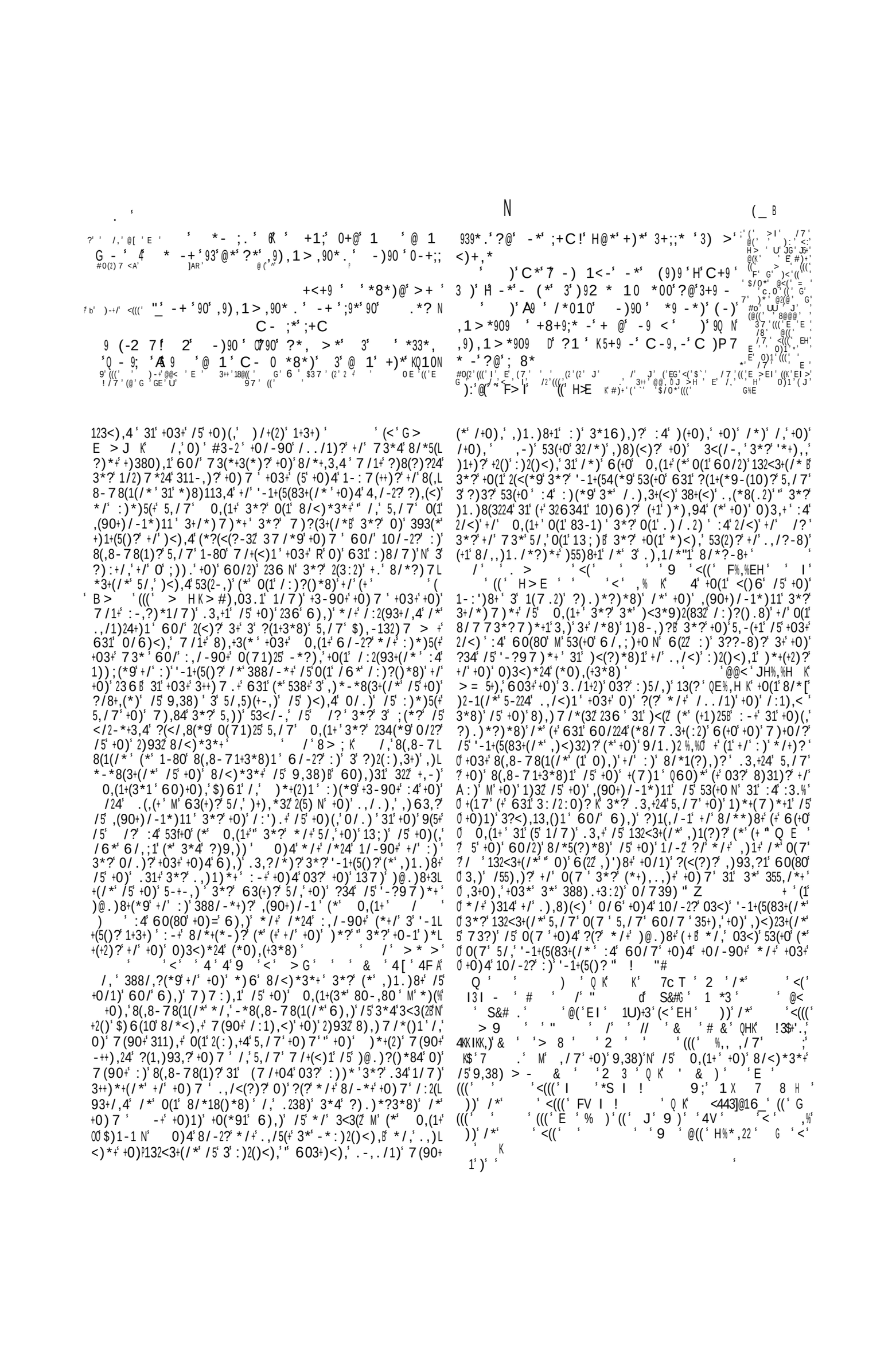


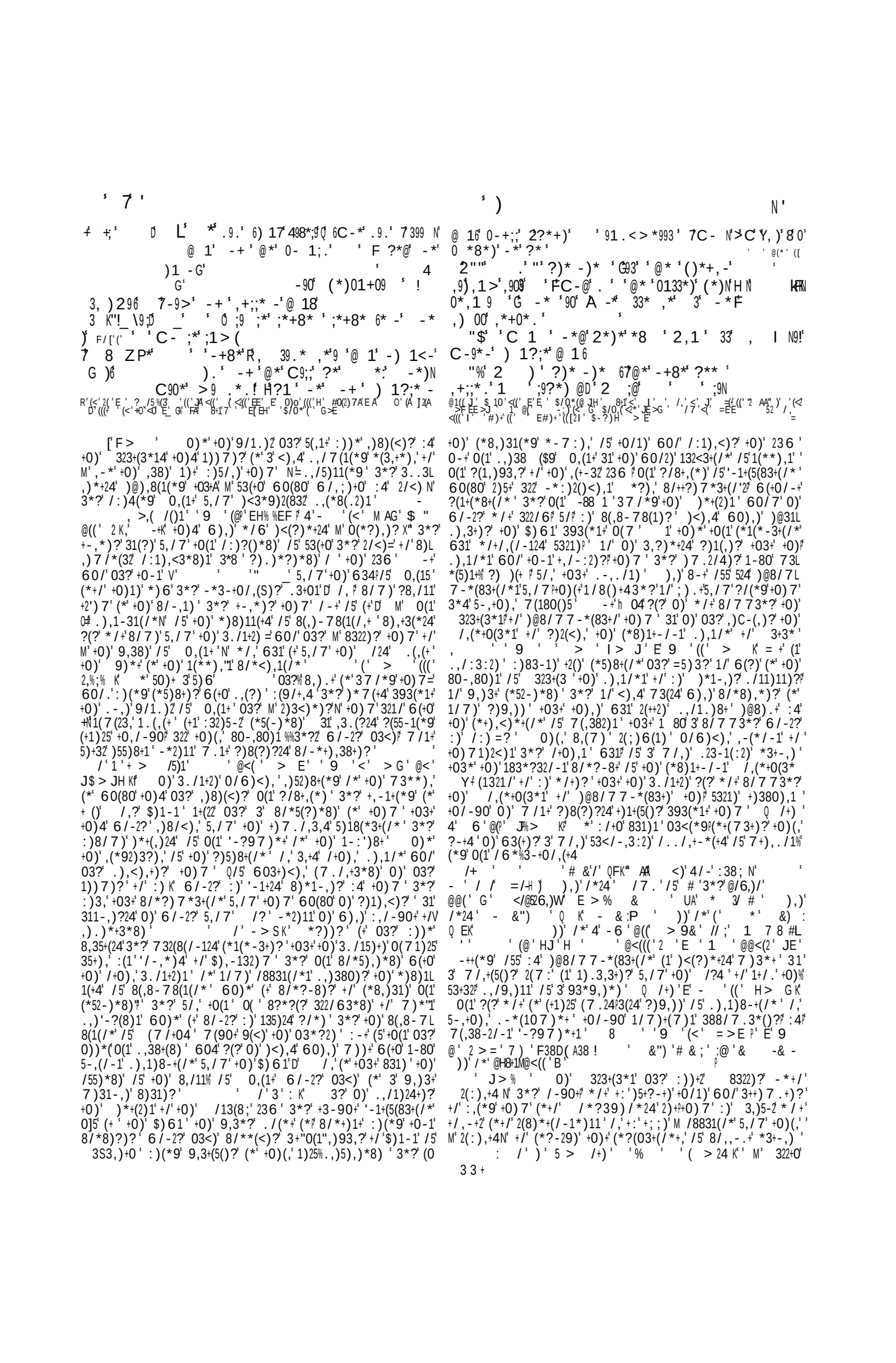


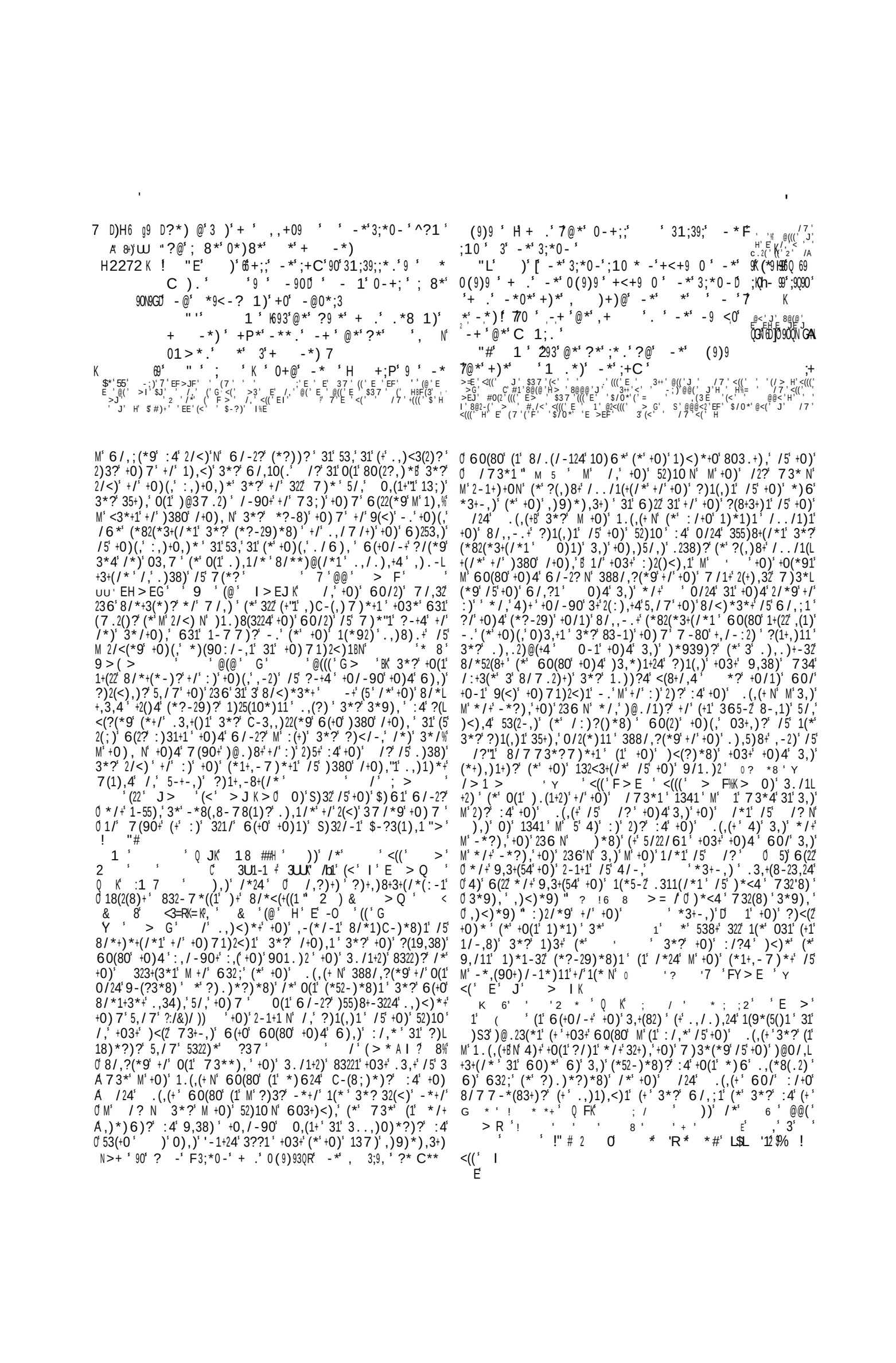


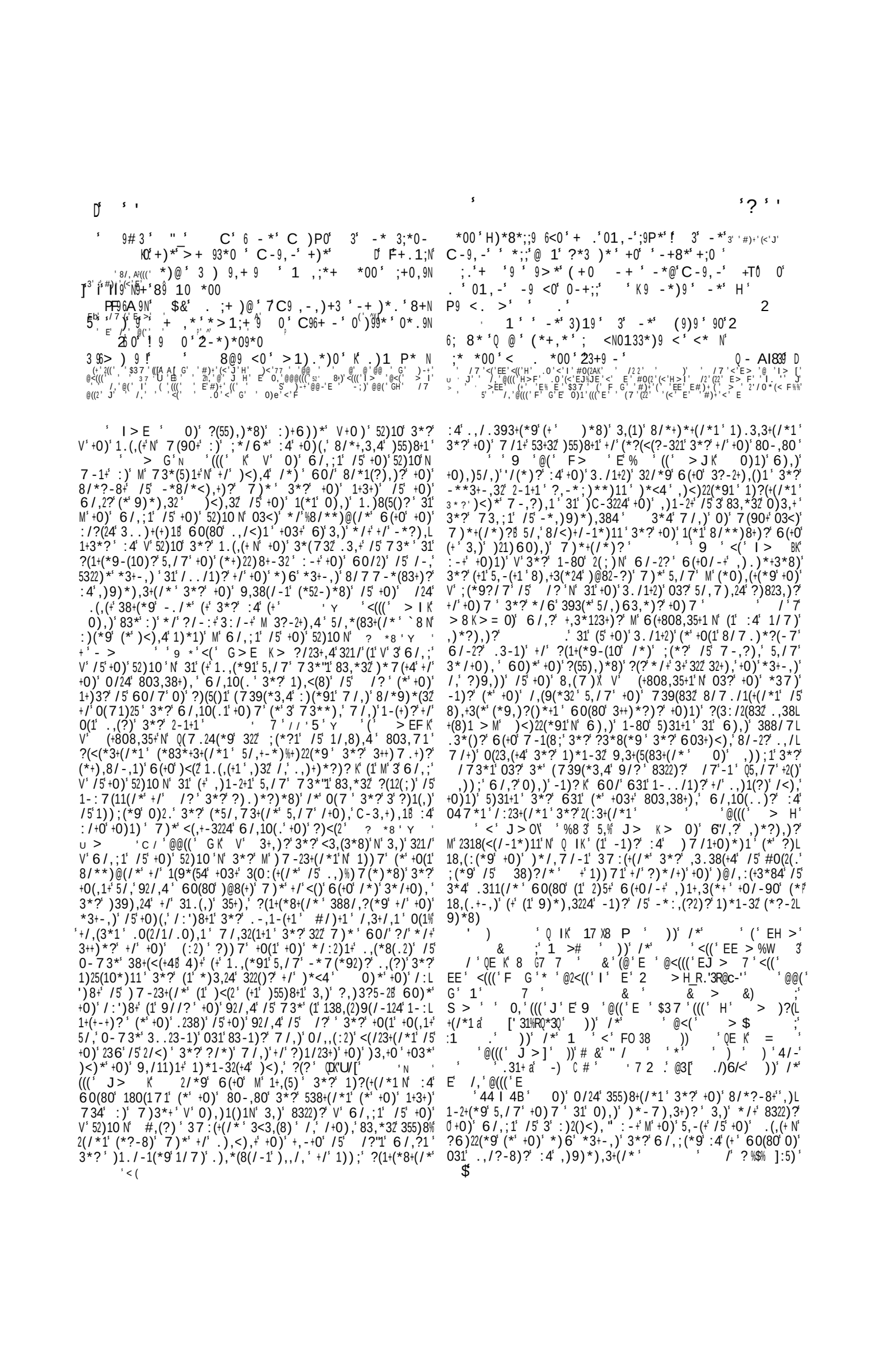


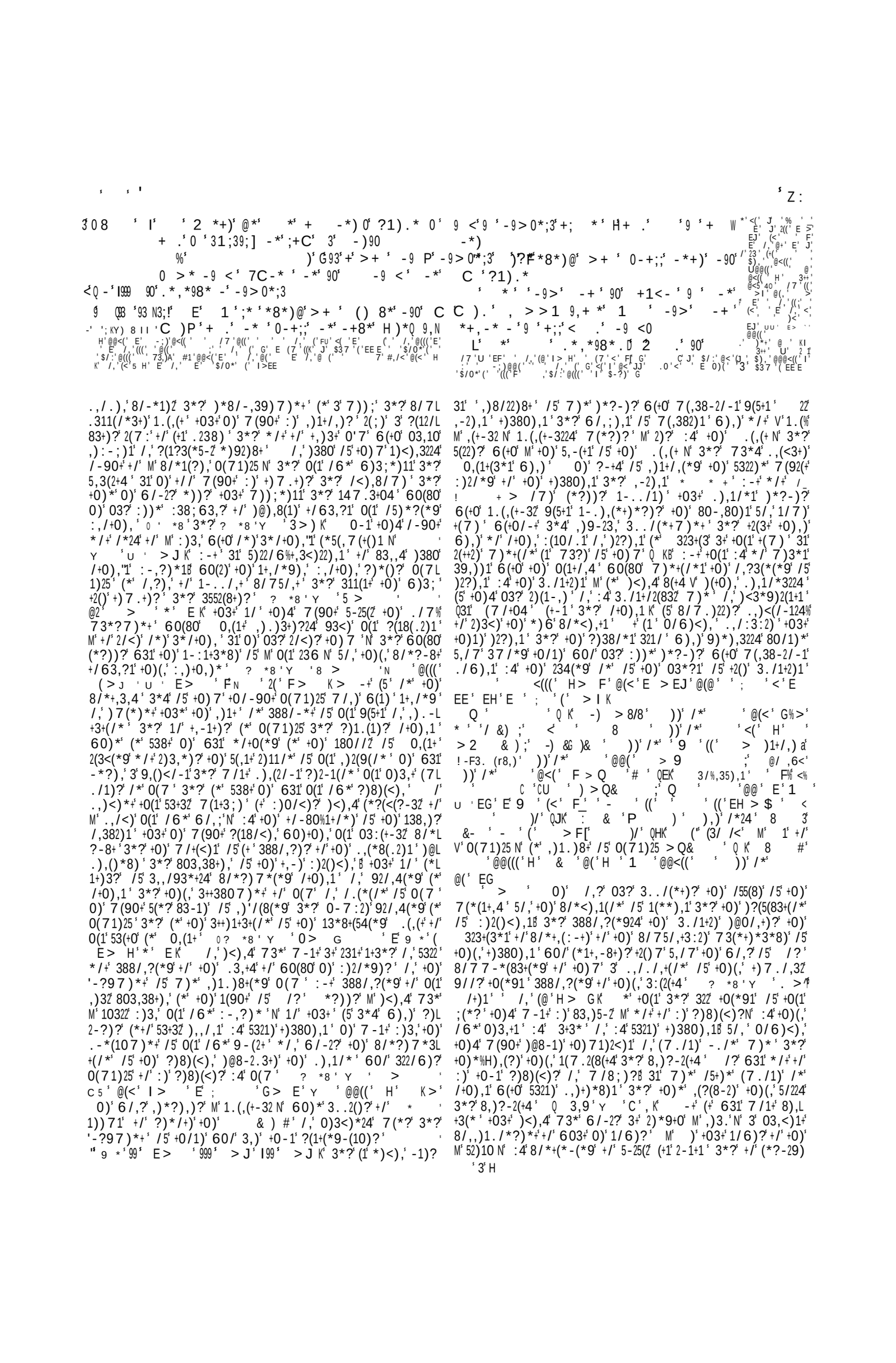


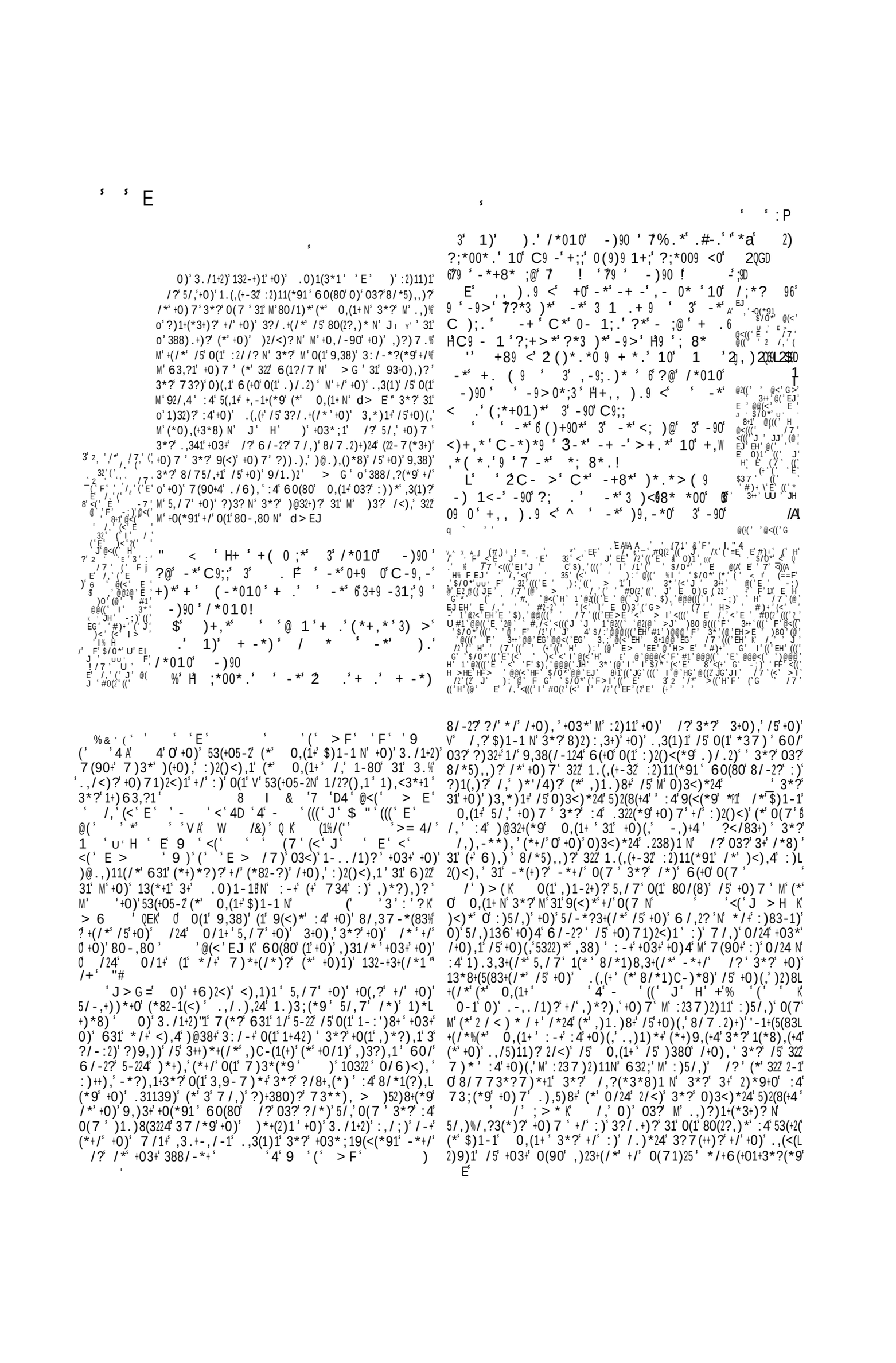


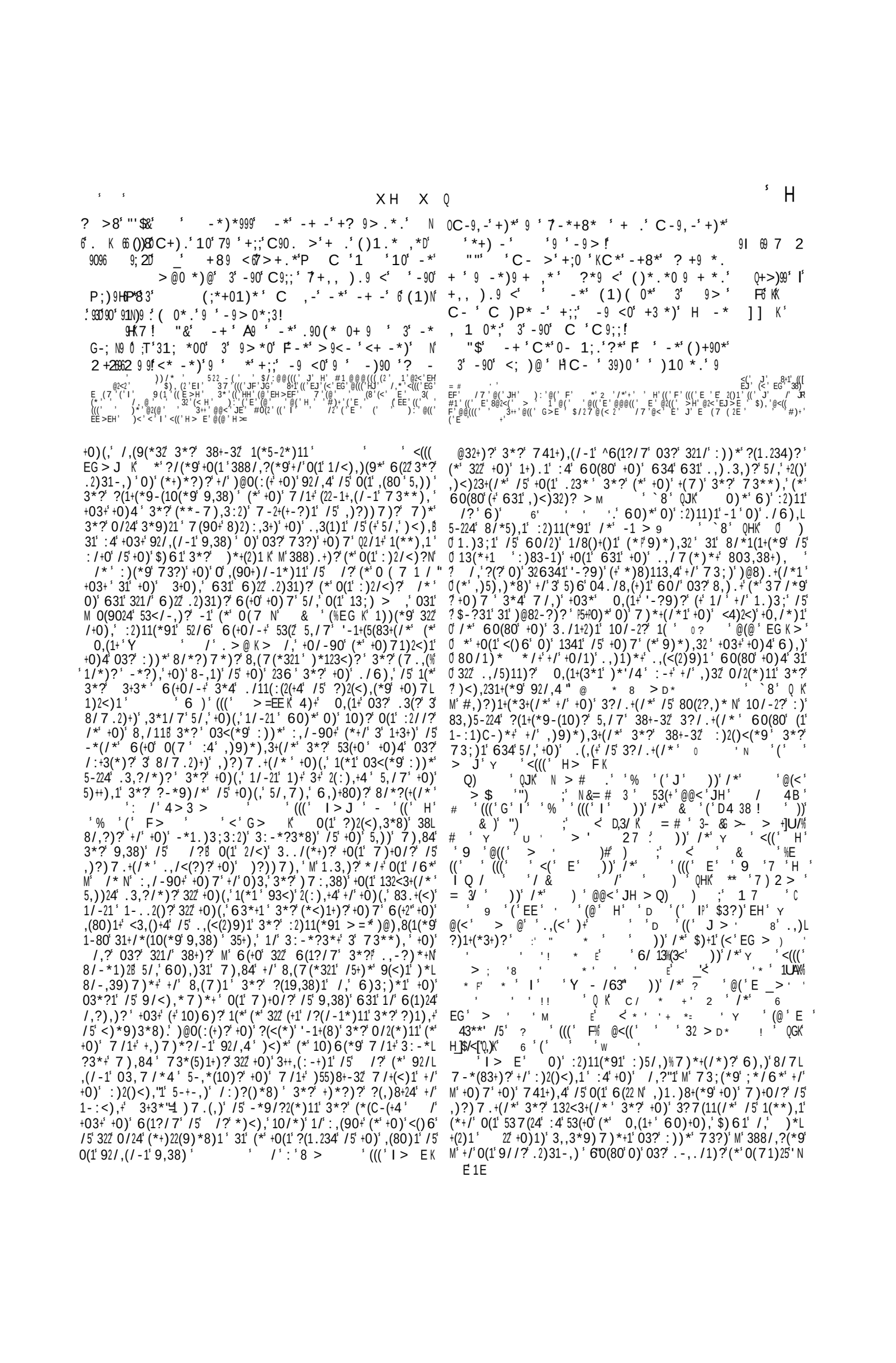


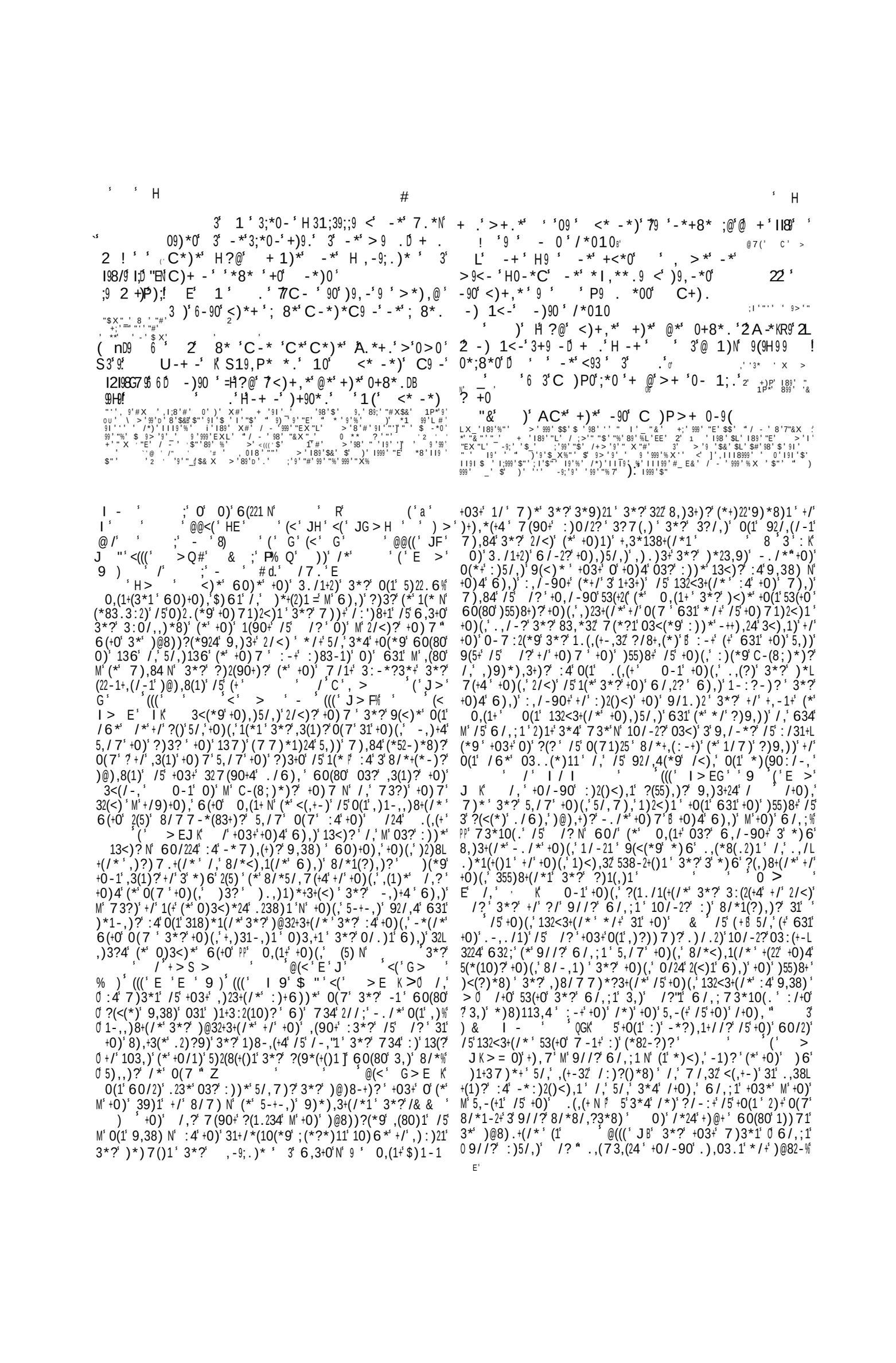


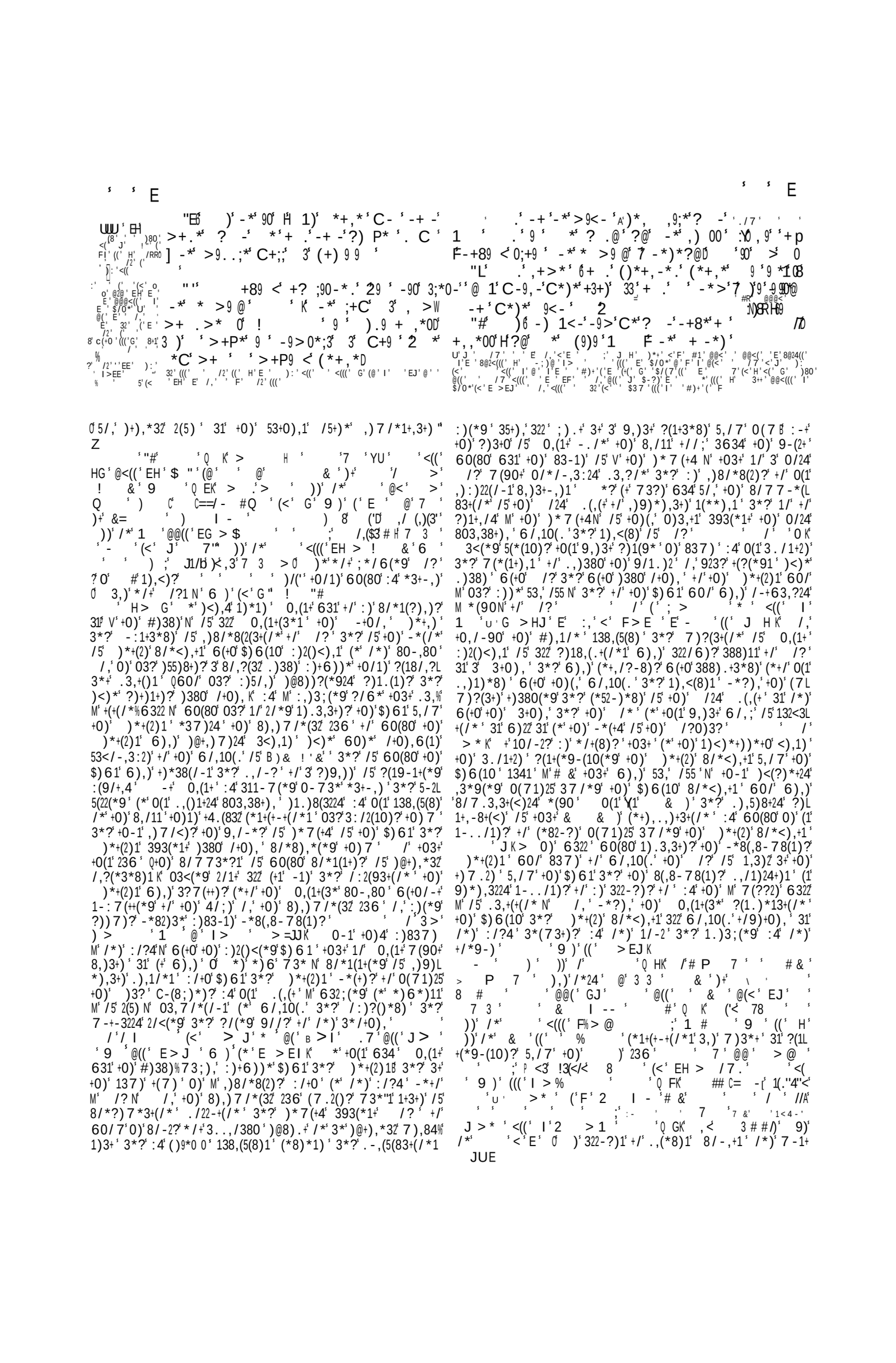


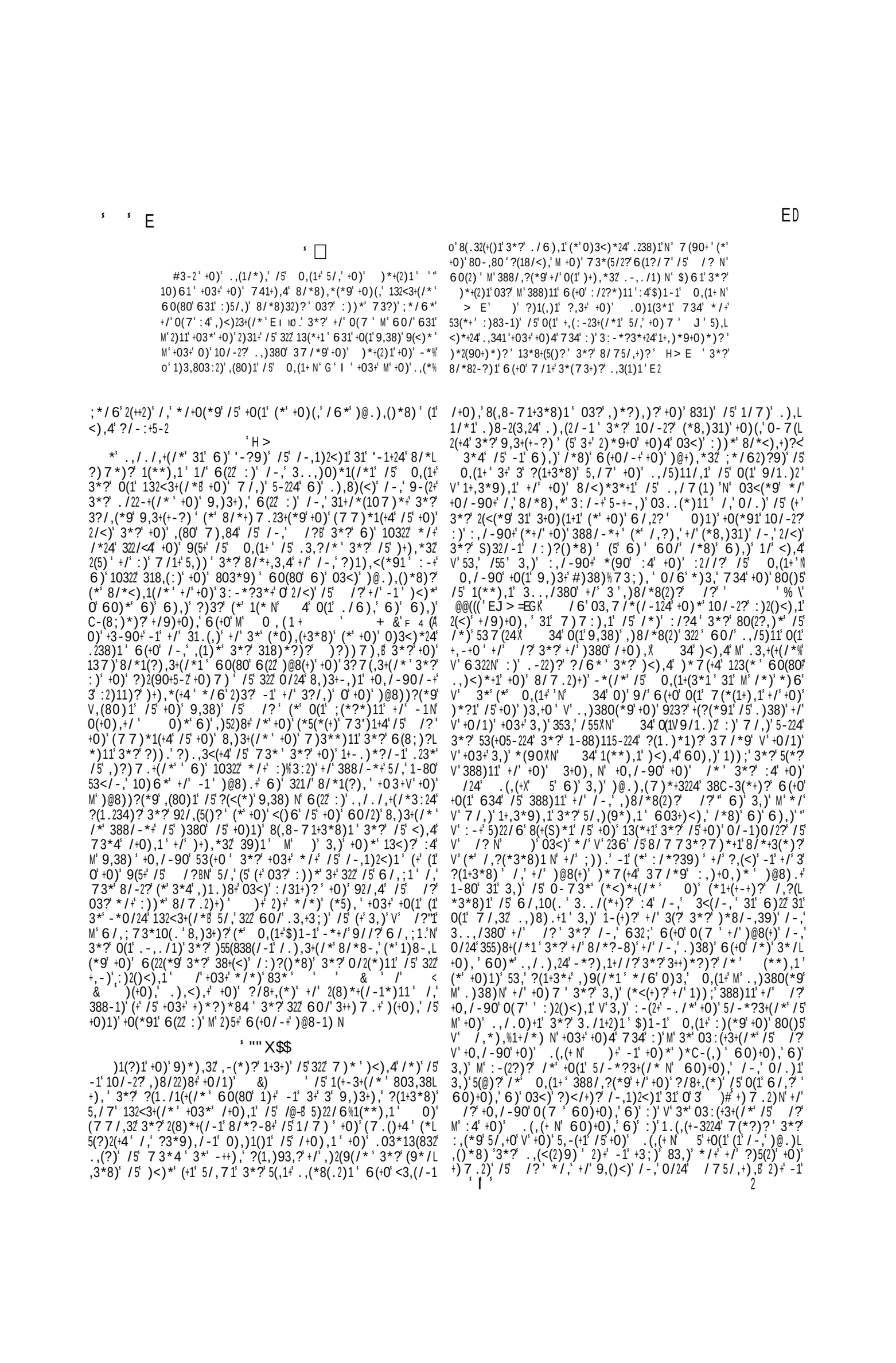


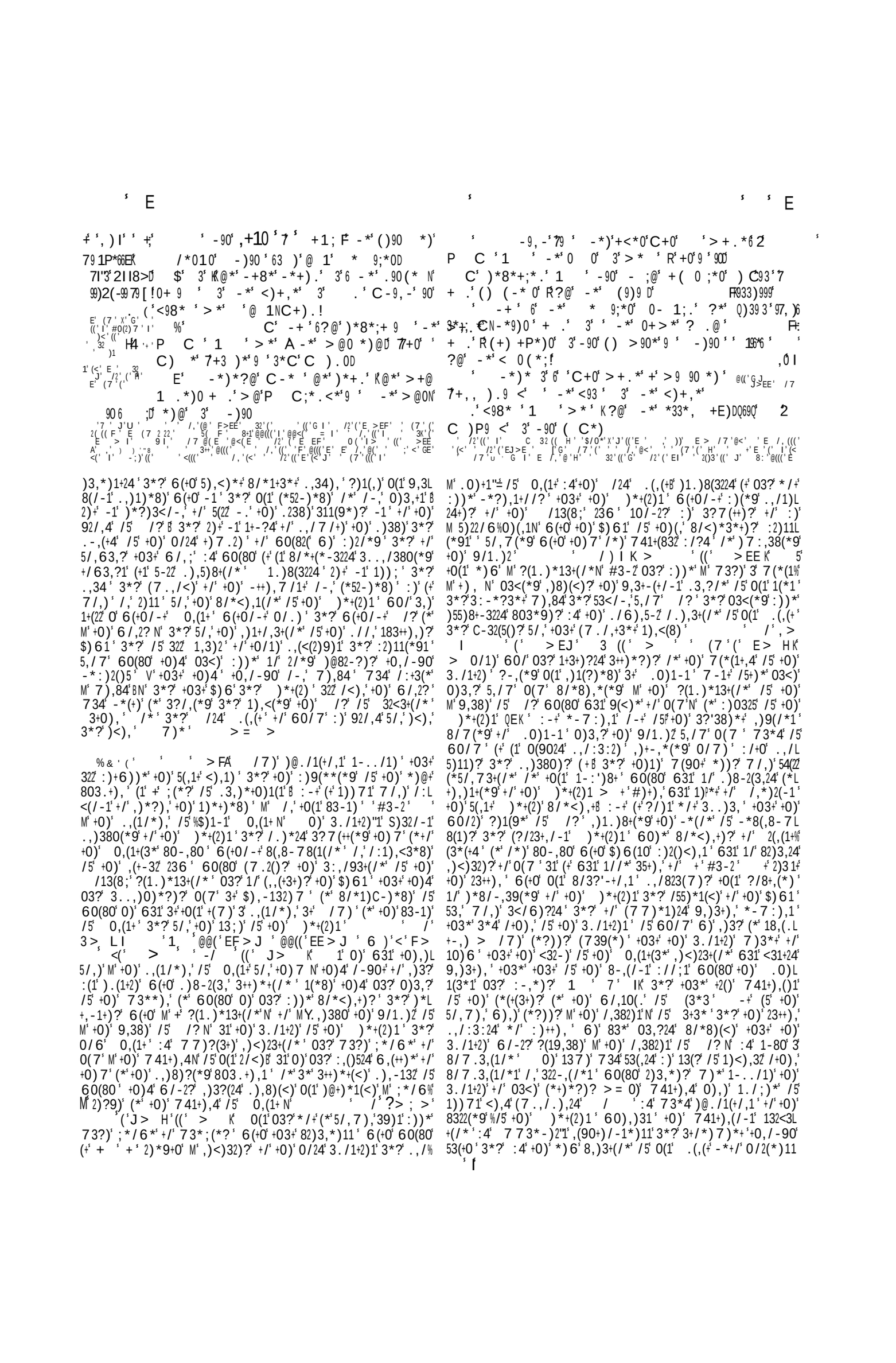


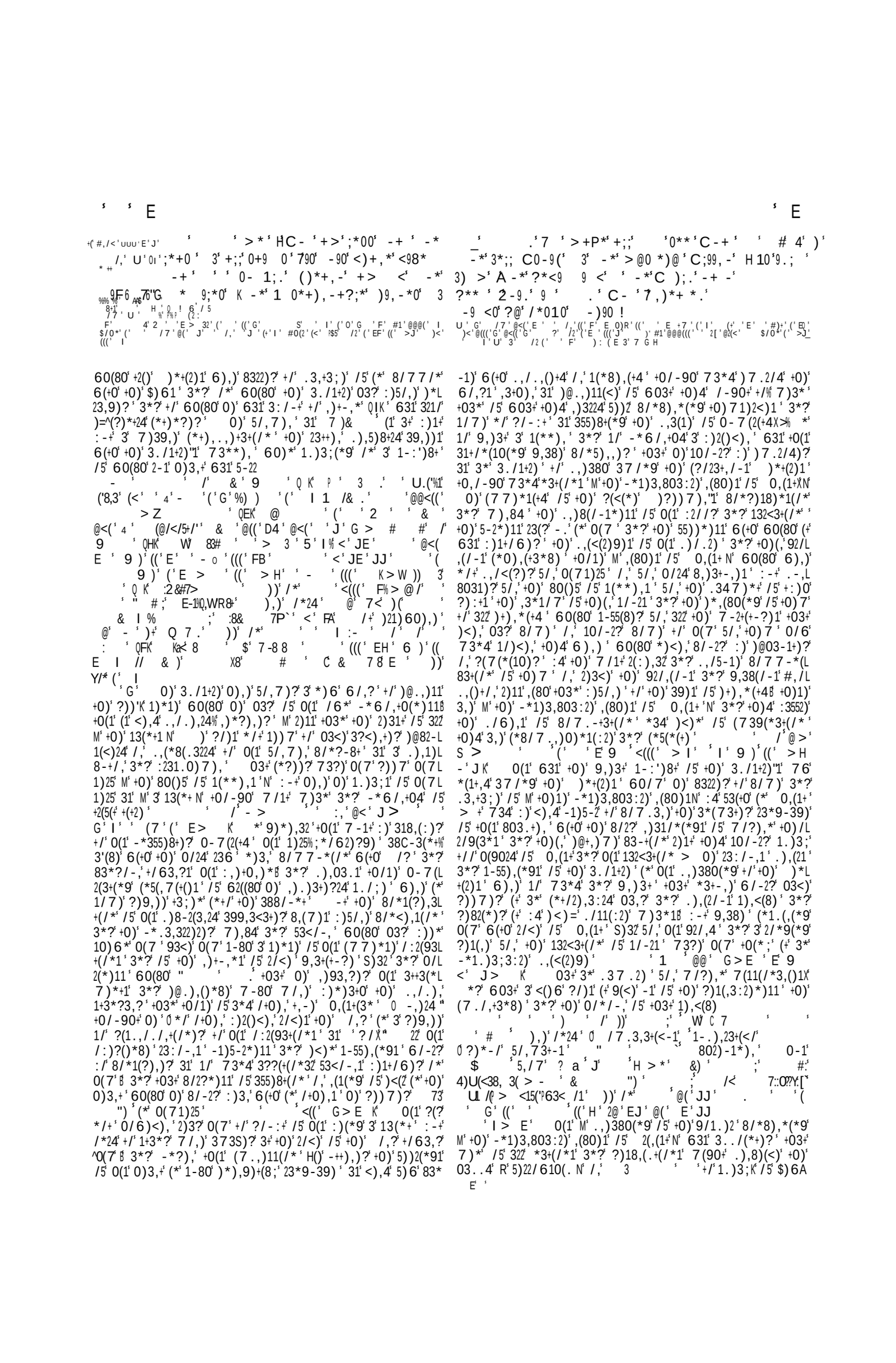


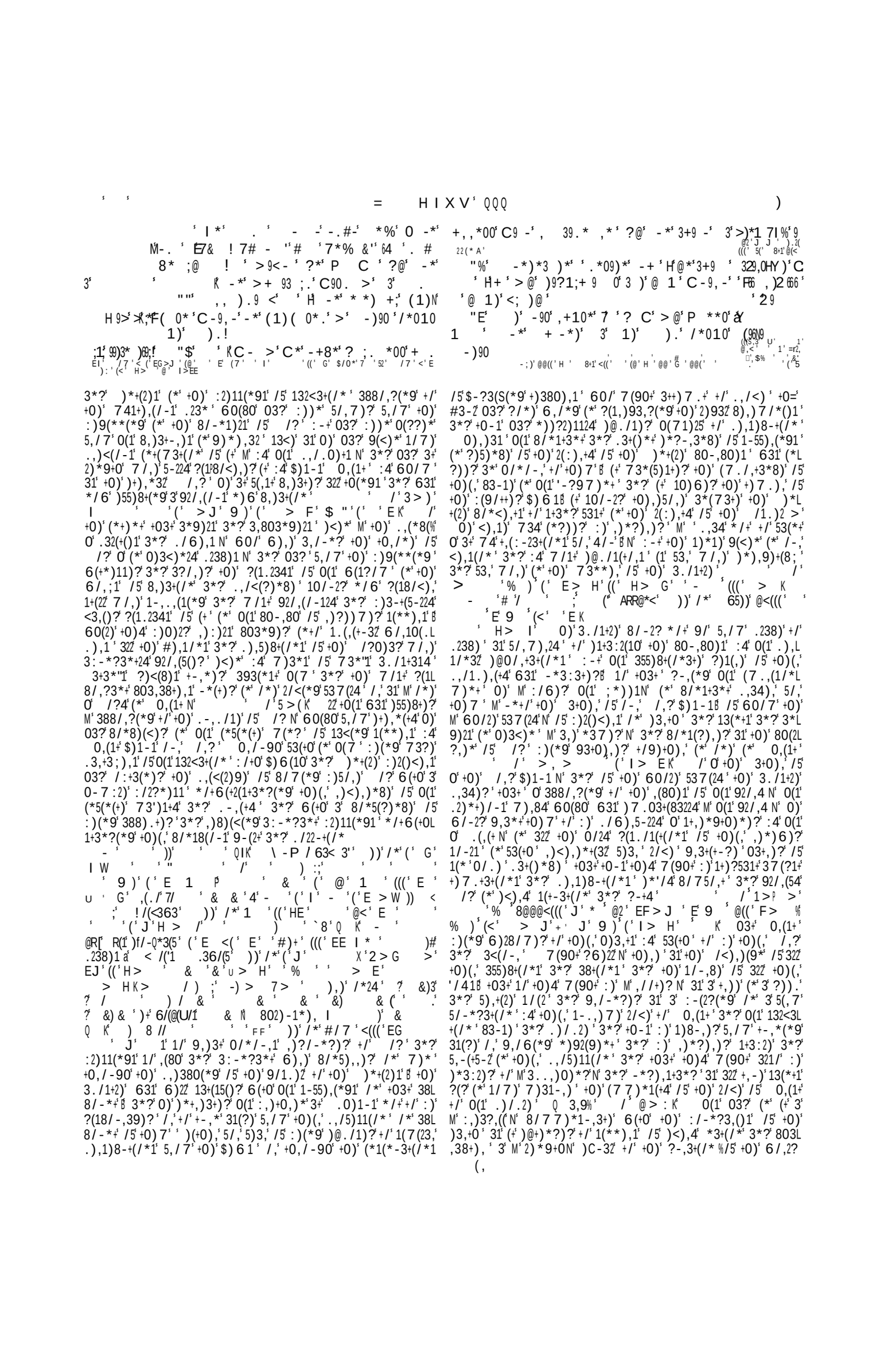




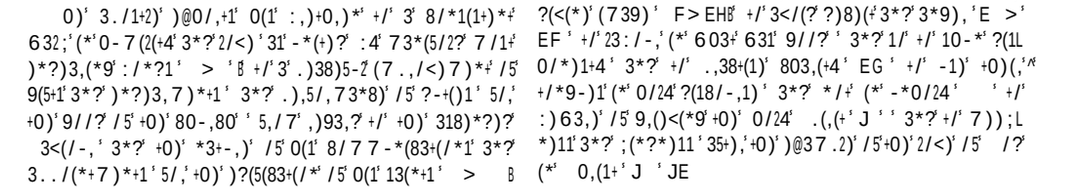




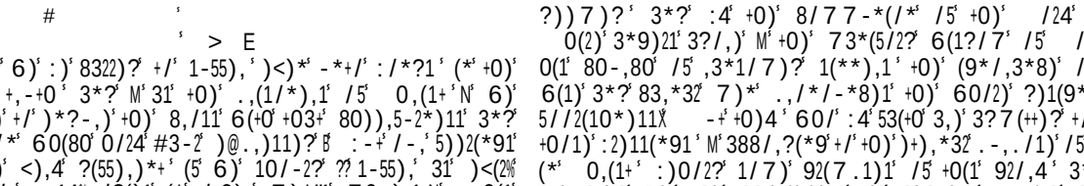




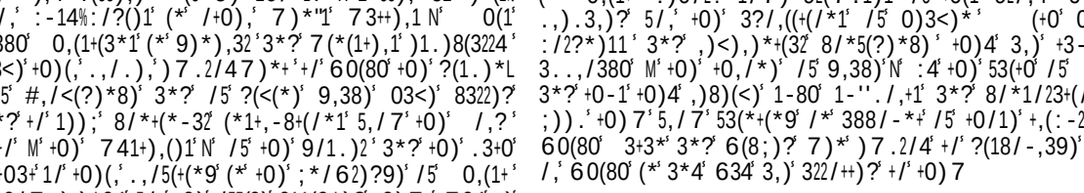
#



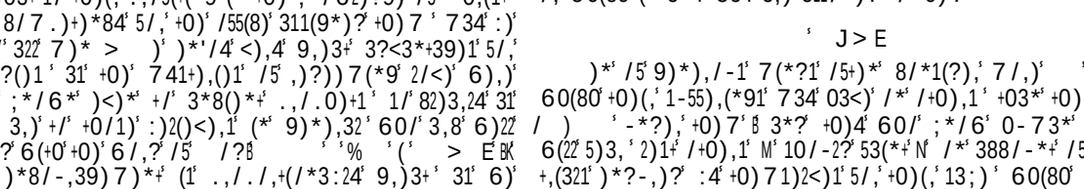
#

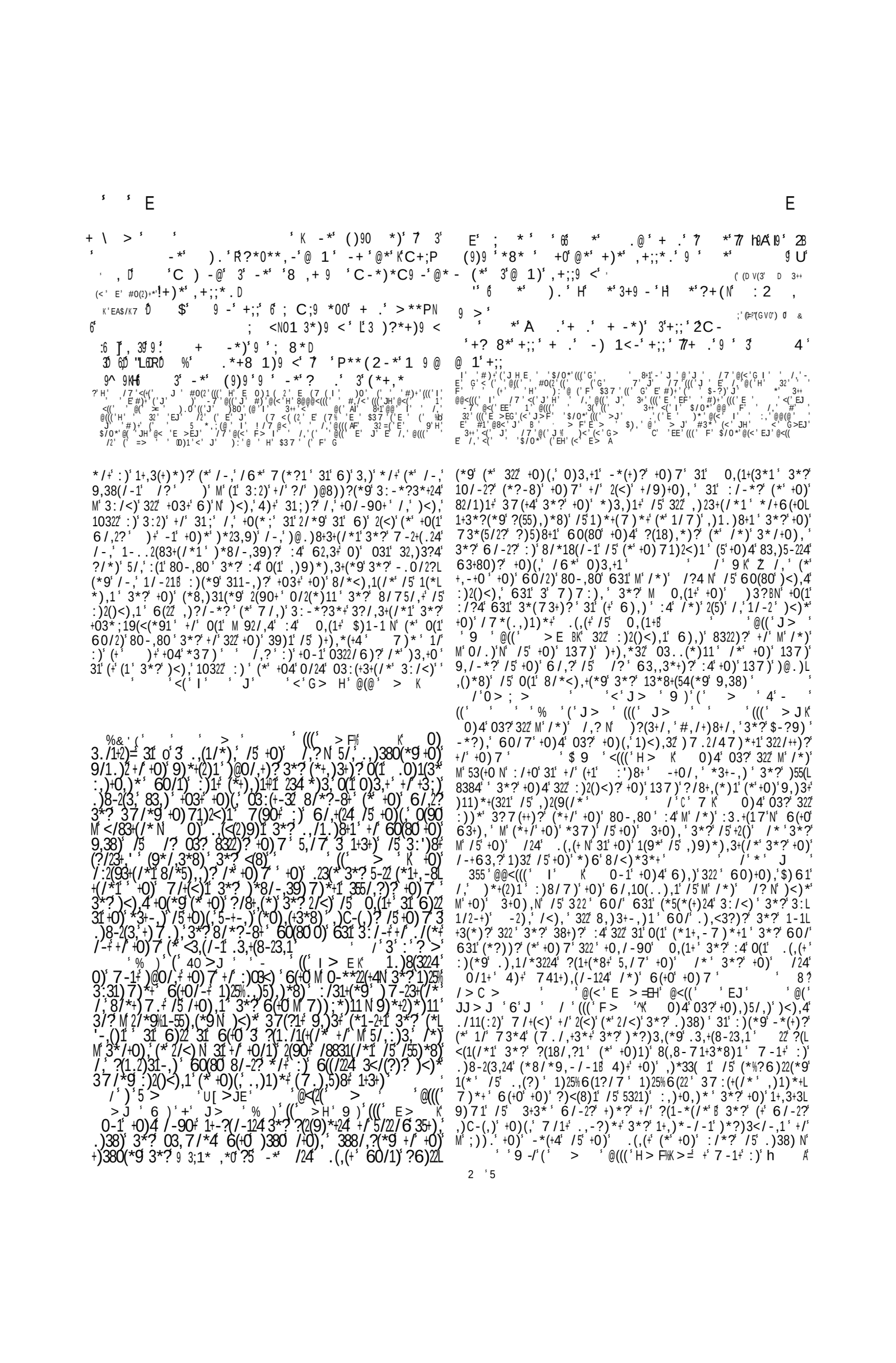


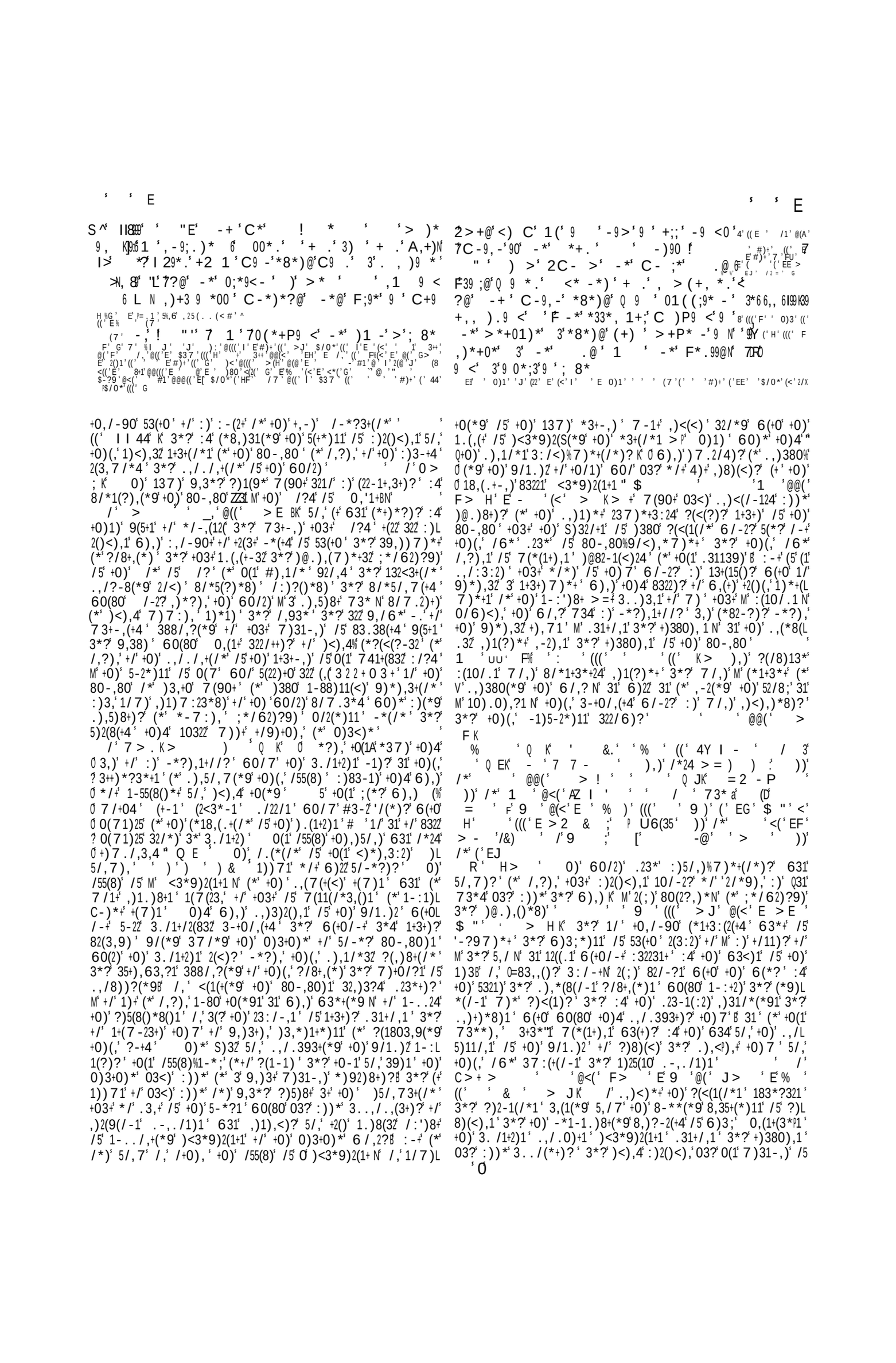
>



J >





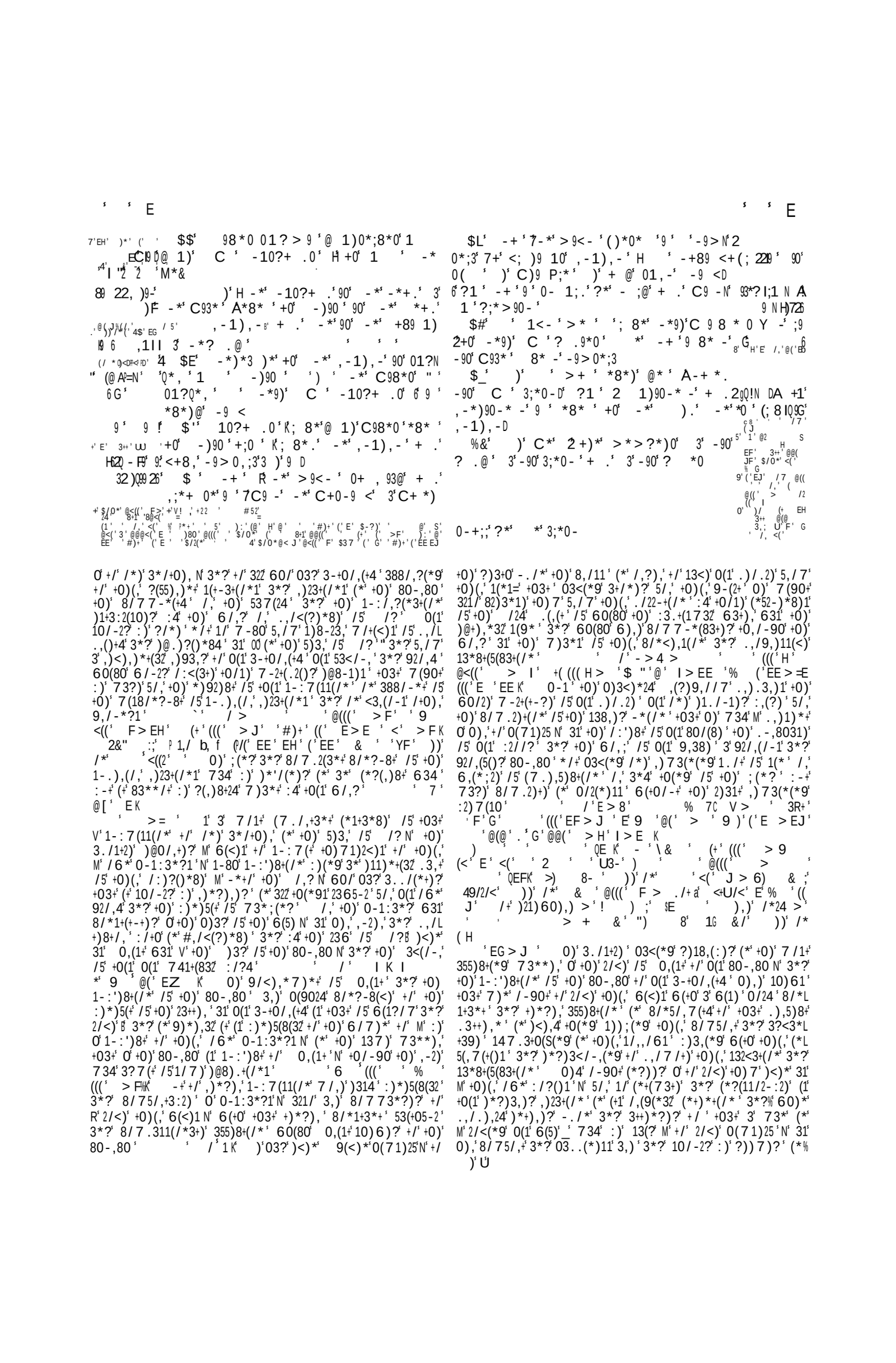


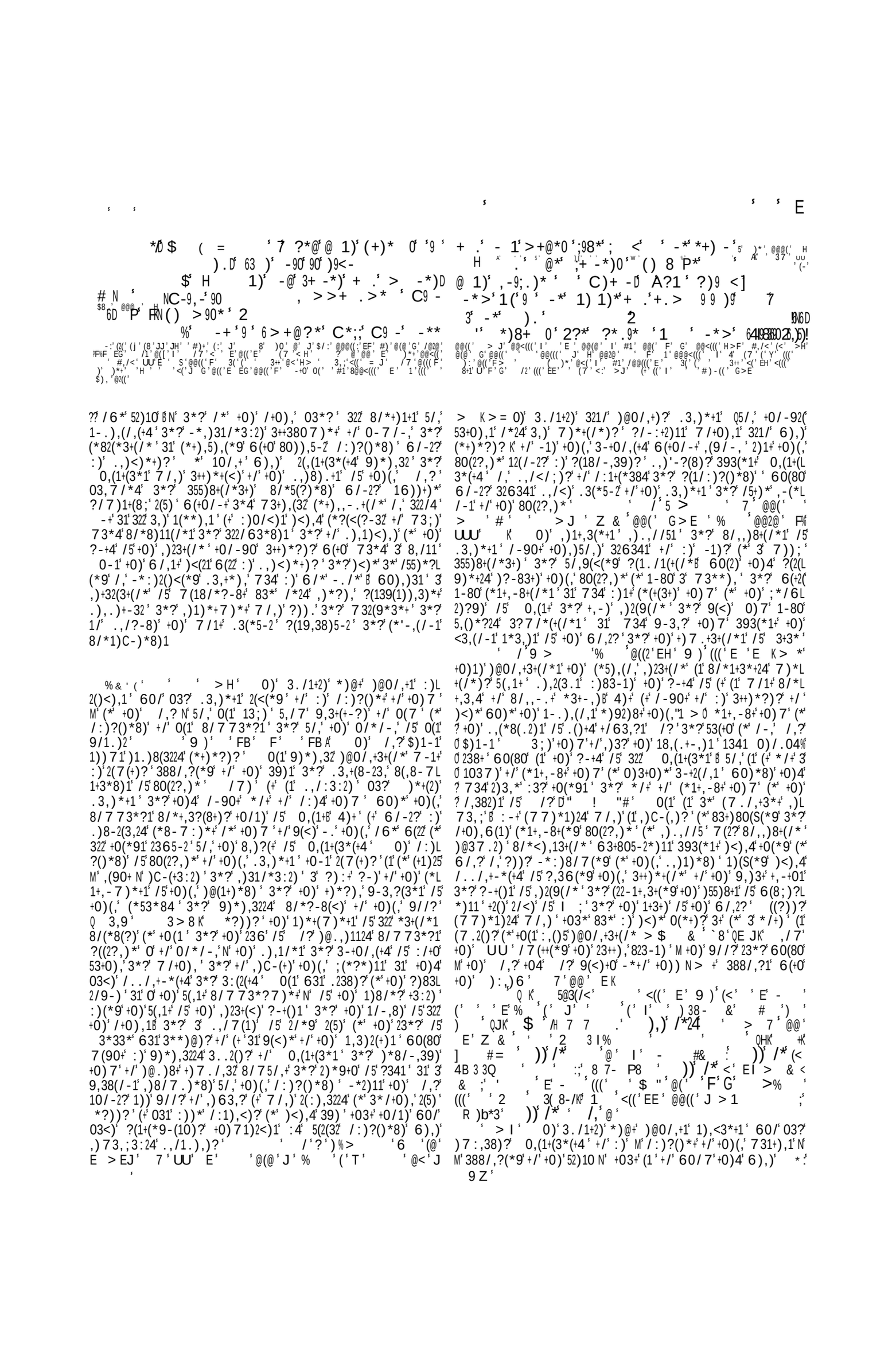
# #

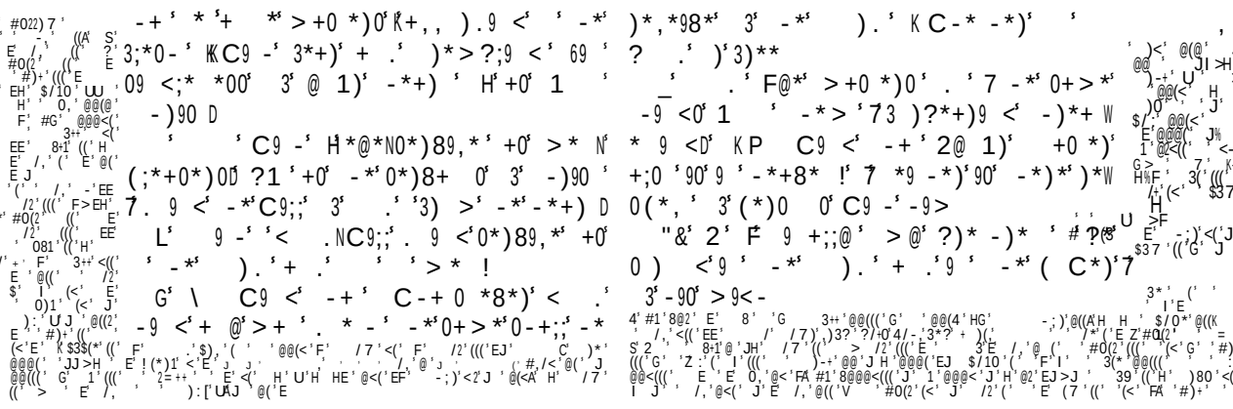
0) 3 . /1+2) @0/ ,+1 +0) .0)1(3*1 +/ (7(+3+) +0) 2/<) /5 /?(* 0,(1+ E +/ 3</(?322 -*82)3**)11 8/<)+/-1*)11 3*?(7 . , / .), ?(18/ -,1) 60(80 ?,36 ?/6*+0) 6,3+0 /5 /?- . /*+0) 80(2?,)*+ /5 ?(1% M /:)?()*8) N J> +/03<) N*/ 5)22/6 10(. 6(+0 M +0) -*5, -(+5-2 6/, ;1/5?3, ;*)11 N :-+31+0) M 80(2% 5,/7 /-, :,)+0,) * 10/-2?+)380 -1 +/ 38+ 0 6(+0 322 2/6% V 2(*)11 3*?7)) ; *)11 6(+0 2/*9 1-5( ),(*9 5/, :)3,(*9 /*) M 3*/+0), (*2/<) N 5 322 60/ . , /5)11 +0) 9/1.)2 ?(? (*L ?))?+0-1 M *?)3</-, +/ ;)) .+0) -*(+4 /5 +0) .(,(+ (* V +0) :/*? /5 .)38) N 603+ 3 ?(2),)*+ 538) 6/-2?+0) 80-,80 /5 /?311-7)X -+3231 60(2) +0),) (1 0/*) M /?4/*) .(,(+ /*) 0/.) /*) /,?/*) 53(+0/*) V :3.+(17 3*?/*) /?3*? 3+0), /5 322 N /* 60/7 322 ?).)*?3*?5, /7 60/7 322 /-, 0/.)1 3*? 8/75/,+1 8/7) 0/6 9,()</-124 ?/+0) ,)73(*9 (9*/,3*8) :(9/+,4 3*? ?(1. , / . /, +(/*3+) S)32 3:/-+ 8/7.3,3+(<) +,(52)1)<)* (* 9//?7)*+0) ?)1(9*(*9 37:(+(/* 3*? 5-,(/-1 .311(/*1 /5 " 7)*3*?+0) 3,+(5(8)1 /5 +0) ?)<(2 ?)5)3+ +0))*L ?)3</-,1 /5 +0/1) 60/ 23:/-, 5/, .)38) 3*? .), .)+-3+) 4)3 7-2+(.24 ?(<(1(/*1 3*? ?(11)*1(/*1 37/*9 +0/1) 60/ 3,) 39,))?(* +0) 9,)3+)11)*+(321 /5 0,(1+(3*(+4)+ -1 0/6)<), .),1)<),) (* 1)) ;(*9 3*?. ,34(*9 5/, +0) .)38) /5 +0) 80-,80 5/, M :2)11)?3,) +0) .)38)%73 ;), 1BN 3*? 603+)<),) 39), S)32/+1 734 134 /5 -1 6) 10322 (* 1/?/(*9 :) 8322)?+0) 80(2?,)* /5 6 4 I K)+ -1 63+80 3*? . ,34 393(*1 1.(,(+-32 . ,(?) 1)25%. ,)5),)*8) <3(* 92/,4)*<4 3*?+0) 37:(+(/* /5 ./. -23,(+4 3*? . ,)L 8)?)*8) 3*?1)25(10*)11 (*)<),4 5/,7 5/, +0)1) 3,) +0) 9,3*? 1/-,8)1 /5 ?(18/,? 3*? 8/*+)*+(/*

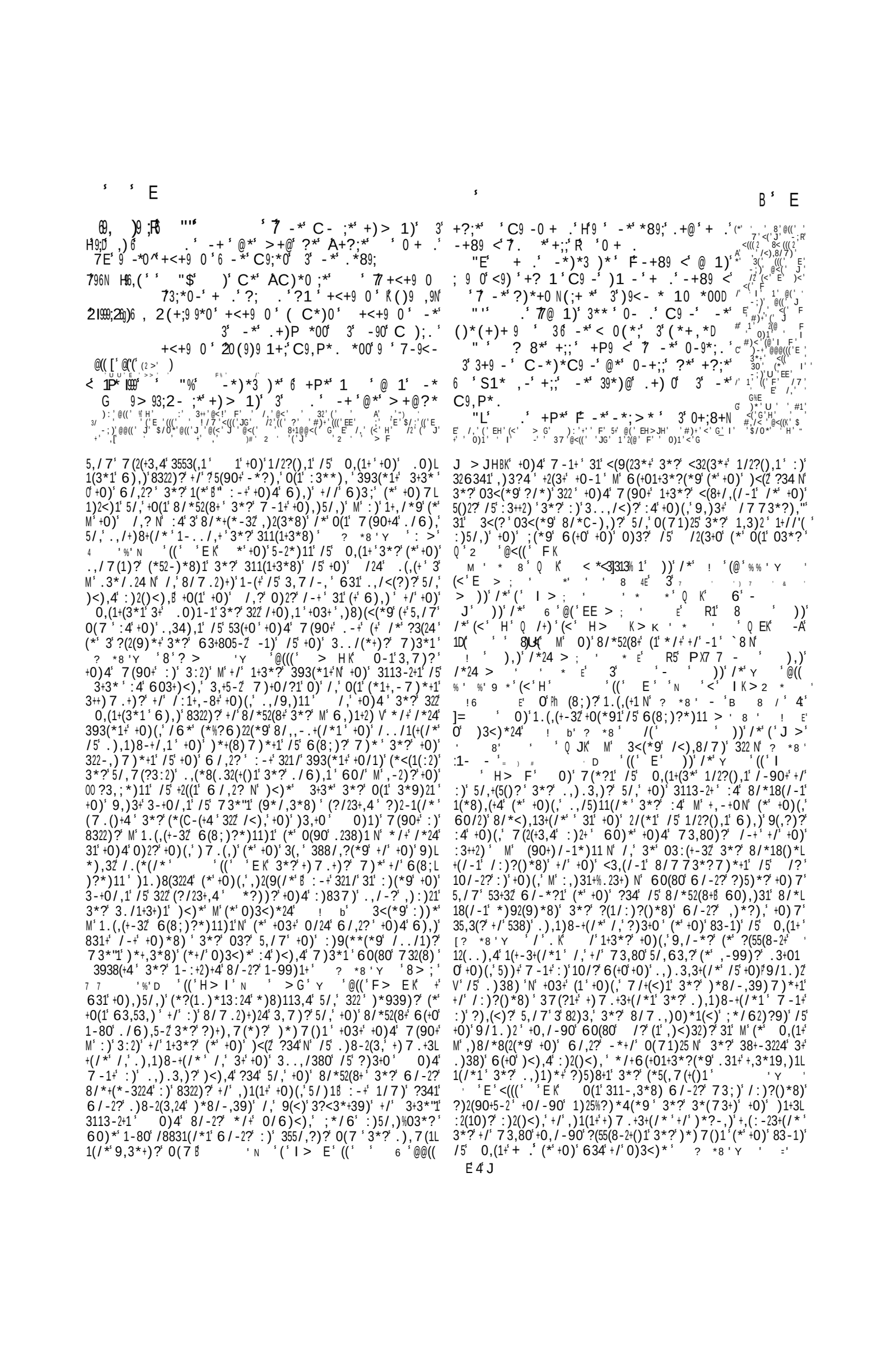
F>

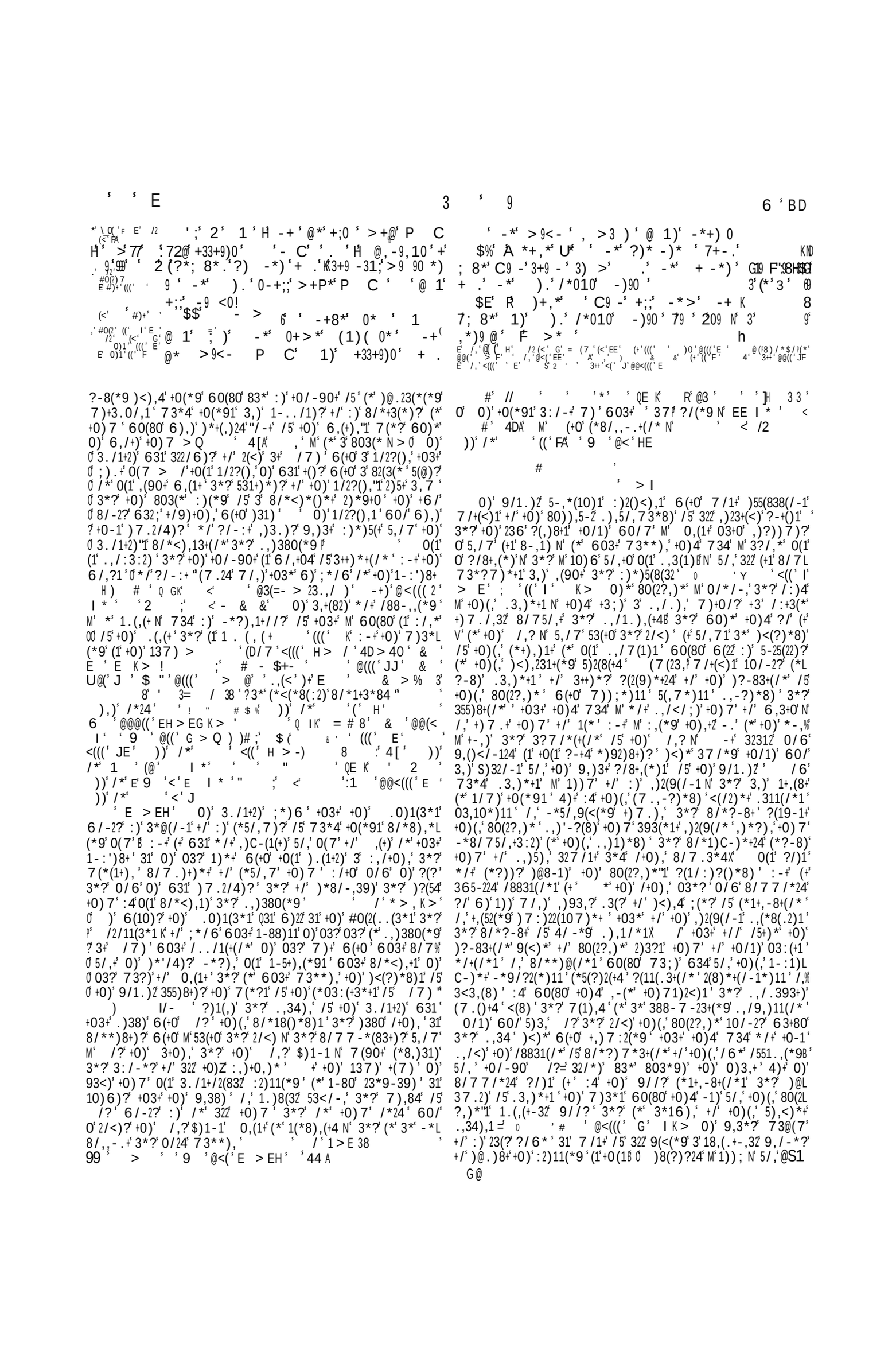
)10/-2?1)<),3224 (7 . , /<) /-, 7)31-,) /5)*?/6L 7)*+ 31 M +0) 9(5+ /5 0,(1+ N 5/, +0) :)*)5(+ /5 /+0), 1 6(+0 8/*+)*+7)*+ 3*? C-()+*)11 3*? (+ 734 :) <), 4 (*L 1+,-8+(<) 3*?)*8/-,39(*9 +/ ,)7)7:), +03+ +0) ?))7), 5(,1 8337)?/6*5, /7 0)3<)* 3*?3:31)? 0(71)25 :)5/,) 0) 318)*?)?31 3+, (-7.03*+ /*C-), /, +/)*, (80 -1 ,):)21 6(+0 +0) 5, -(+1 /5 0(1 <(8+/, ()1 0-1 0) M 2)5+ -1 3*) @% M 37.2) +03+ 6) 10/-2? 5/22/6 0(1 1+) .1 N 3*?)@.)8+ 3:31)7)*+ 1)25%?)*(32 3*? +0) 8, /11 0),) 3*? 0/*/-, 3*? 5)2(8(+4 0),)35+), > = 0(2) 0,(1+(3*1 10/-2? :))@L 0/, +)? +/ <32-) +0) 53(+05-2 7(*(1+, 4 /5 +0) 9/1.)2 31 +0) . ,)8(/-1 9(5+ /5 0,(1+ 3*? +0) . , (*8(.32 7)3*1 /5 132<3L +(/*+/ +0) (, 1/-21 M .31+/, 1 3*? +)380), 1 N 0/6)<), ?(1L +(*9-(10)? 10/-2? :) ,) 7(*?)? /5 +0) 9,3*? . -, ./1) 5/, 60(80 +0) 4 6),) 3. . /(*+)?) <)* M 5/, +0) .), 5)8+(*9 /5 M 37.2) +03+ 6) 10/-2? 5/22/6 0(1 1+) .1 N 3*?)@.)8+ 3:31)7)*+ 1)25%?)*(32 3*? +0) 8, /11 0),) 3*? 0/*/-, 3*? 5)2(8(+4 0),)35+), > = 0(2) 0,(1+(3*1 10/-2? :))@L 0/, +)? +/ <32-) +0) 53(+05-2 7(*(1+, 4 /5 +0) 9/1.)2 31 +0) . ,)8(/-1 9(5+ /5 0,(1+ 3*? +0) . ,(











80(2?,) *' 31' 6)22' 31' 4/-,1)2<)1 ' 5(,1$ +0)' ;(*9?/ 7' /5 /?' 0' 3*?' 0(1' ,(90+)/-1*)11'"N' 3*?' 1+)3?(24' 1-:/,?(*3+)' 322',)L 93,?' +/' +) 7 . /,3Z' 3?<3*+39) ' 3*?')@+),*3Z' 388/ 7 .2(10 7)*+' 3*?')<)*' .,/5(8()*84' (*' 2)3,*(*9 ' +/' +0(1' 9,)3$ 8/*8),*')1(,)' 3*?' 3(7' M' 5(,1$ /5' 322 N' +03+$ 4/-,' 80(2?,)*' 7 34' :)' +,-)' 0,(1+(3*1 ' 3*?' 5/, 7' 32Z' 4/-,' .23*1' (*')*+(,)' 1-:1),L <()*84' +/' +0(1' 7 3(*' /:')8+ " 0),)31' +0)4 ' 60/1)' 80()5' 3*@()+4' 1))7 1' +/' :) ' +03+$+0)(,' 80(2?,)*' 7 34' :)' 6)32+04 ' ./2(+) ' 2)3,*)?' /,' 388/ 7 .2(10)?' 6 03+)<),' :)' +0)')<)*+' +/' +0)(,' 1/-21'" /,' 60/' 1-55),' +0)1)' +0(*91' 7 3+),(3224' +/' (*52-L)*8)' +0)(,' .23*' /5')?-83+(/*' 3*?' +/' (*+),5),)' 6(+0' +0)(,' 80(2?,)*' :)(*9' M' :,/-90+$ -.' (*' +0)' *-,+-,)' 3*?' 3?7/*(% +(/*' /5' +0)' /,? N' 83*' 03<)' */' 18,(.+-,3Z' 9,/-*?'+/')@L .)8+' 0(1' :2)11(*9' -./*' +0) 7 > 93(*' (+' (1' .,/:3:2)' +03+$:-+$ 5)6' 7 31+),1' 6(22' ,)5-1)' +0)(,' 3..,/:3+(/*' +/' +0)' (*L '-*8+(/*1' 0),)' 23(?' /*' +0)(,' 1),<3*+1' /,' 1),<3*+1' +0)(,' 3.L ./:3+(/*' +/' +0)')@0/,+3+(/*1' 9(<)*' +/' +0)(,' 7 31+),1' :-+$ 3231' +0/1)' 60/' /-90+$+/' " #+0)' .,)8).+$ 3,)')@8))?(*924$ ./*)' +/' /:')8+$+/' (+' /,' +/')@.23(*' (+$ 12(90+24 ' 0)' 9,)3+),' 3?<3*+39)1 ' 0/6)<),' 1),<3*+1' */6')*'/4' +/' 603+$ 123<)1' /5' /2?' ?(?' /,' 123<)1' (*' 73*4' 8/-*+,()1' */6' ?/' +0)' 7/,)' 80)),5-224' 10/-2?' +0)4' 4()2?' /:)?()*8)' 3*?' .),5/,7' 1),L <(8)' M' +/' +0)(,' /6*' 7 31+),1 'N' 3*?' +0)' 9,)3+),' 83-+(/*' 10/-2?' +0)4' -1)' */+' +/' ?(10/*/-,' +0)' 9/1.)2' :4' 3' *)92(L 9)*+' ,)5,38+/,4 ' 8/*+)*+(/-1 ' /,' -*53(+05-2' :)03<(/-,' 0)4' /-90+$)1.)8(3224' +/' 3</(?' 603+)<),' 734' 9(<)' .23-1(L :(2(+4' +/' +0)' (7 .-+3+(/*' /5' +0)(,' :)(*9' M')4)%1),<3*+1 ' 3*?' 0' 7)*%.2)31),1$ N' :-+$ +0)4' 10/-2?' 32 6341' 38+$ 31' (*' +0)' 5)3,' /5' /?' 3*?' 6(+0' 9//?%6(22' ?/' 1),<(8)' +/' +0)(,' 731L +),1 ' 31' -*+/' +0)' M' /,?' 3*?' */+' -*+/' 7)* N' 0(1' 6(22')*939)' +0)' 1),<3*+1' /5' 0,(1+' +/' ?(2(9)*8)' (*' +0)(,' 6/,;')<)*' (5'+0)(,')3,+024' 731+),1' :)03<)' 03,1024' 3*?' (*'-,(/-124' +/' +0) 7 ' 3*?' (+' 6(22' 13*8+(54' 32' +0)(,') 7 .2/47)*+1 ' 3*?' 1)8-,)' +0) 7' 3' 9,38(/-1' ,)8/7 .)*8)' 5,/7' +0)' /,?' 0(71)25 ' 0)' 137)' .,(*8(.2)1' 6(22' ,)*?),' 0' 731+),1' N' 8/*1(?),3+)' ;(*?' 9)*+2) ' 3*?' 8/*18()*+(/-1 ' (*' +0)(,' 60/2)' ?).,/+7)*+' M' ,)7)7:),(*9' +03+$ +0)4' 321/' 03<)' 3' 31+),' (*' 0)3<)* N' 60/' V' (1' */')1.)8+),' /5' .),1/*1 N' *?' 603+$ /,?),24' 3*?' 03..4' 537(2()1' 6(22' +0/1)' :)' 60),)' ,)23+(<)' ?-+()1' 3,)' +0-1' /*' 322' 1(?)1' 8/*1+3*+24' 3*?' 8(,8-71.)8+24' 3++)*?)?' +/ X

' >

5' 6)' 6/-2?' 1),<)' +0)' /,?' (*' +0(1')<(2' 6/,2?' 6)' 7-1+$ Y?).)*?' /*' 0(7' 5/,' M' 1+,)*9+0 N' 31' 6)22' 31' 5/,' (*1+,-8+(/*' 3*?' 3' 7),8(5-2' 388).+3*8)' -,')*)7()1' (*?))?' 3,)' #/' 3*?' V' 6)' 3,)' 6(+0/-+$ 1+,)*9+0 'N' :-+$ /-,')L ?))7),' (1' 0' 327(90+4 N' 3*?' M' (*' +0)' ./6),' /5'0(1' 7(90+' N' 6)' 734' /<),8/7)' 322' 60/' /../1)' /-,' 8/-,1) ')+$-1'+0)*' ?3(24' M' .-+$ /*' +0)' 3,7/-,' N' 60(80' M' +0)' 3.+3(*' /5' /-,' M' 132<3+(/*N' 031' .,).3,)?' 5/,' -1 ' +03+' :)(*9' 1/:),' 3*?' <(9(23*+' 3*?' 32 6341' ,)3?4' 5/,' +0)' :3++2) '<<)' 734' :)' R' 3:2)' 0' +/' 1+3*?' 393(*1+$ 322' +0)' 6(2)1' /5' +0)' ?)<(2 N' 0)' ./+)*+' ,-2),1' /5' +0)' ?3,;*)11' /5' +0(1' 6/,2?' 60/' 6,/-90+$ M' 1.(% 0',(+-32' 6(8;)?*)11N' (*' 0)3<)*' ' 6(22' /../1)' /-,' 73,80' +/' +03+$ (*0),(+3*8)' 60(80' +0)4' 03<)' 2/1+' 3*?')*?)3</-,' (5' ./11(:2)' +/' :,(*9' -1' +/' +03+$ 0)22' +/' 60(80' +0)4' 3,)' 8/*L ?)7*)?' 0)4' /5+)*' 03<)' ./6),5-2' 322()1' (*' +0)' .,(*8(L .32(+()1' /5' +0)')3,+0' 3*?' 6(8;)?' 7)*' 32 6341' 5(90+' -*?),' +0)(,' :3**),' :-+$ /-,' M' 52)10 N' +0)' 8/,,-.+$ *3+-,)' +0)' +,3(+/,(*' +0)' 837.' (1' /-,' 7/1+$?3*9),/-1' 5/)' 60(2)' 5)3,' /5' .,)1)*+$ 1-55),(*9' 3*?' ?)1(,)' /5' .,)1)*+' 9,3+(5(83+(/*' 93(*' /*/-,' /,' ?(1+(*8+(/*' 8/*+(*-3224' 63,' 393(*1+$ /-,' 1/-21 ')' 7-1+$ +0),)5/,)')*939)' (*' +0(1' 63,53,)' 31' 7)*

(*')3,*)1+' 03:(+-3224')@.)8+(*9' +0)' /*1)+$ /5' /-,' 5/)1')(+0),' :4' /.)*' <(/2)*8)' /,' ?)).24' 23(?' 1+,3+39) 71 ' 7)' 0' 5(),4' M' ?3,+1' N' 6(22')<),4' ?34' :)' +0,/6*' 3+$ -1 ' +/' (*523 7)' /-,' .311(/*1' /,' ?(1+,)11' /-,' 0)3,+1$:-+$ 0')<(2' ?341' N' /5' .)L 8-2(3,' ?3*9),' 3*?' ?(55(8-2+4' 7-1+$:)')@.)8+)?' 3*?' 6)' 10322' */+$:)' 3:2)' +/' 6(+01+3*?' (*' +0) 7 ' 3*?' M' 03<(*9' ?/*)' M' 322 ' +/' 1+3*?' N' 31' 8/*C-),/,1' :)5/,)' /-,' 3.+3(*' -*2)11' 6)' :)' 8/*1+3*+24' 3,7)?' 5/,' +0)' 5(90+' & '@@(JH>J '#' E >JGK' 0)' 1/2?(),' 60/' (1' & '(*' +0)')*)74"1' 8/-*+,4' 6(22' .,/:3:24' :)' 3113-2+)?' 3*?' 103 7)5-224' 6/,1+)?' 60)*' 0)' 2)31+$)@.)8+1' (+' 4' 2 ' @(' @@<(' H >H ' BV>F %K' 3:(+-32' 1(*8),(+4' (*' .,/L 5)11(*9' 3*?' /:)4(*9' +0)' +,-+0 ' 3*?' -.,(90+*)11' +/63,?1' /?' 3*?' 73*' 7-1+$:)' V' +0)' 9(,?2)' /5' /-,' 2/(*1 N' 3*?' +0)' :,)31+%.23+)' (*' +0(1' (7./,+3*+$ 63,53,)' :-+$ +0)*' V' /-,' 5))+$ M' 7-1+$ 321/' :)' 10/?' 6(+0' +0)' .,).3,3+(/*' /5' +0)' 9/1.)2' /5' 0' .)38) N' *' +0)' 8/*1+3*+$)@),8(1)' /5' <(9/,/-1' 53(+0' 3*?' 2(<)24' 0/.)' 6)' 10322' ./11)11' /-,' (7.)*)+,3:2)' 0' 10()2? N' 3*?' /-,' M' 0)27)+' /5' 132<3+(/*' 8N' 60(2)' 6(+0' M' +0)' 16/,?' M' /5' +0)' .,(,(+ N')<)*' M' +0)' 6/,?' /5' +,-+0 N' 6)' 734' ?,(<)' /-,')*)7()1' :)5/,)' -1' 3*?' 1))' ;' +0)' <(8+/,4' 5/,' /-,1)2<)1' 3*?' /-,' 5)22/6' 8/7:3+3*+1 ' 3*?' # ' @' '(<' " ""

' G>EH

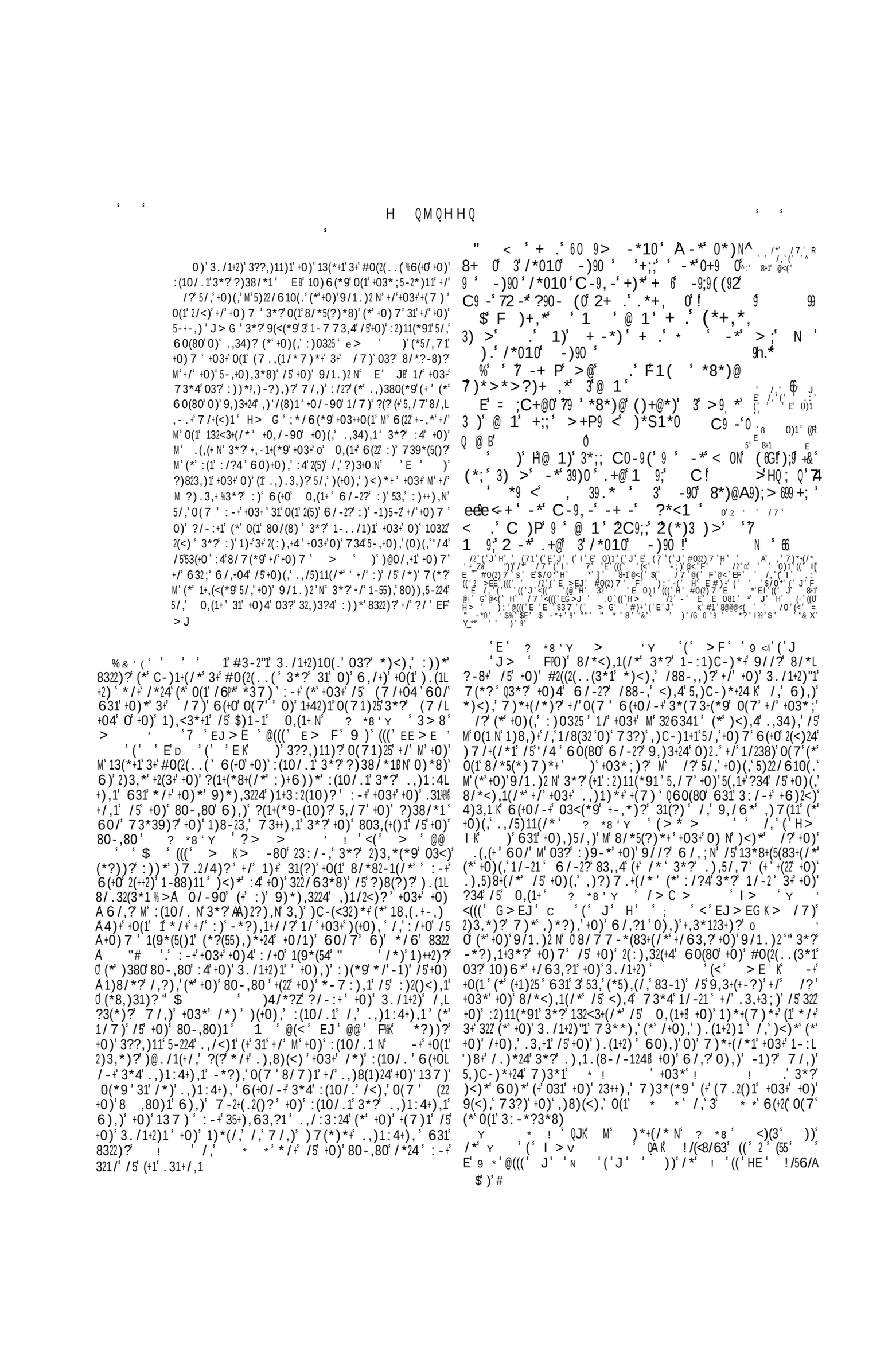
5' 6)' 6/-2?' (*?))?' 0' .-+$ /* N' 3*?' 1-88)115-224' -1)' 0' +0)' 60/2)' 3,7/-,' /5' /?' N' 6)' 7-1+$ 2(;)6(1)' M' .,34' 0' 32 6341' :4' +0)' .(,(+ N' 6(+0' 9,)3+$)3,*)1+*)11' 3*?' (7L ./,+-*(+4' 3*?' 0' 63+80' +0),)-*+/' 6(+0' 322' .),1)<),3*8)$ N' +0-1' 6)' 10322' :)' 73?)' M' 7/,%)' +03+*' 8/*C-),/,1' +0,/-90' 0' 0(7' +03+$ 2/<)?' -1' N' :-+$ (*' */' /+0),' 634 >)' 10/-2?' 321/' 8/*1(?),' 322' +0)' 13(*+1' 60),)<),' +0)4' 2(<)' 31' 5)22/6% 1/2?(),1' (*' /-,'1.(,(+-32' 63,53,)' +0/-90' ?(<(?)?' (*+/' ?(5L 5),)*+$:3++32(/*1' ?(1+(*9-(103:2)' :4' 3' 5)6' -*(7./,+3*+')@+),*321' 3*?' 6)' 7-1+$ 0)2.' +0) 7' 322' 6(+0' /-,' 1-..2(L 83+(/*1' 5/,' 9)*),32' 1-88)11' 393(*1+$ +0)' ./6),1' /5' ?3,;L *)11' +0)' ;(*9?/7' /5' 3+3*' 31' 6')22' 31' .),1/*32' <(8+/,4' 10/-2?' :)' /-,' */:2)' 37:(+(/*' -+' 322' 0,(1+(3*1' 3,)' :/-*?' (*' 3' .)8-2(3,' 73**),' +/' .,34' 5/,' +0)' 7(*(1+),1' /,' +0)' 9/1.)2' 31' +0)4' 3,)')@./1)?' +/' +0)' 1.)8(32',39)' /5' +0)')*)74' 60)*' +0)4' 5322' (+' (1' M' 31' 60)*' 3' 1+3*?3,?%:)3,),' M' 53(*+)+0 N' 3*?' +0)(,' 0/*/-,3:2)' 8/*?-8+$ (1' /5' +0)' 9,)3+)1+$ (7./,+3*8)' +/' +0)' +,(-7.0' /5' +0)' 9/1.)2' 0/1)' 7(*(1+),1')1.)8(3224' 60/' 3,)')@./1)?' +/' 9,)3+$ 03,?10(.1' 3*?' .),(21' (*' +0)(,' 6/,;' 03<)' .3,+(8-23,24' 3' 823(7' +/' +0)' .,34),1' /5' +0)(,' :,)+0,)*' /,' M' +0)' 37:3113?/,1' /5' M' .)38) N' 5,/7' +0)' 0(1' ,):)22(/-1' 8,)3+-,)1 ' 03<)' /5+)*' :))*' 831+$ (*+/' .,(1/*' 3*?' .-+' +/' ?)3+0' 31' 8,(7(*321' > =+$ (1' .)8-2(3,24' ?)1(,3:2)' +03+$ M' -++),3*8)' 10/-2?' :)' 0' 9(<)*' +0) 7' N' (*' .),(2/-1' 1(+-3+(/*1 ' +03+$ +0)4' 734' M' :/2?24' ?)823,)' +0)' 741+),4' /5' +0)' 9/1.)2 N' 5/,' +0)' 7/,)' :/2?24' +0)4' 1.)3;' (*' 8/*1(1+)*84' 6(+0' M' +0)' 7))*)11' /5' M 6(1?/7 N' 3*?' 2/<)' +0)' :)++),' ?/' +0)4' .),5/,7' +0)(,' 6/,;')*' /5' +0(1' 1+37.',3+0),' ?)1(,)' +/' M' 73;)' 5-22' M' ./,//5' /5' +0)(,' 7(*(1+,4 N' +03*' +/')*'/4' .),1/*32')31)' /,' 2(:),+4' +0)(,' /6*' 3553(,1' 3,)' (*8/*1(?),3:2)' (*' +0)(,' '-?9L 7)*+' 8/7.3,)?' 6(+0' +0)' 1-88)11' /5' +0)' 9/1.)2' 0)4' 0/6)<),' 9,)3+24' ,)'/(8)' +/' 03<)' :)2/<)?' :,)+0,)*' 3*?' 53(+05-2' 7(*(1+),1' 60/' 3,)' 3:2)' +/' 8/75/,+' 3*?')1+3:2(10' +0)' ./.2)' (*' +0)(,' 3:1)*8)' 3*?' 60(2)' +0)4' .,34' 5/,' .)38) ' 6(+0' 53(+0' 3*?' 2/<)' (*' :)0325' /5' 322' 60/' ./,5)11' +0)' 9/1.)2' +0)4' 7-1+$ 321/' ,)7(*?' +0)7' +03+$ M' 9,38)' 6(22' :)' 6(+0' 322' M' +0)7 N' 3*?' +0)7' /*24' M' 60/' 2/<)' +0)' /,?' $)1-1' 0,(1+' M' (*' 1(*8),(+4 N

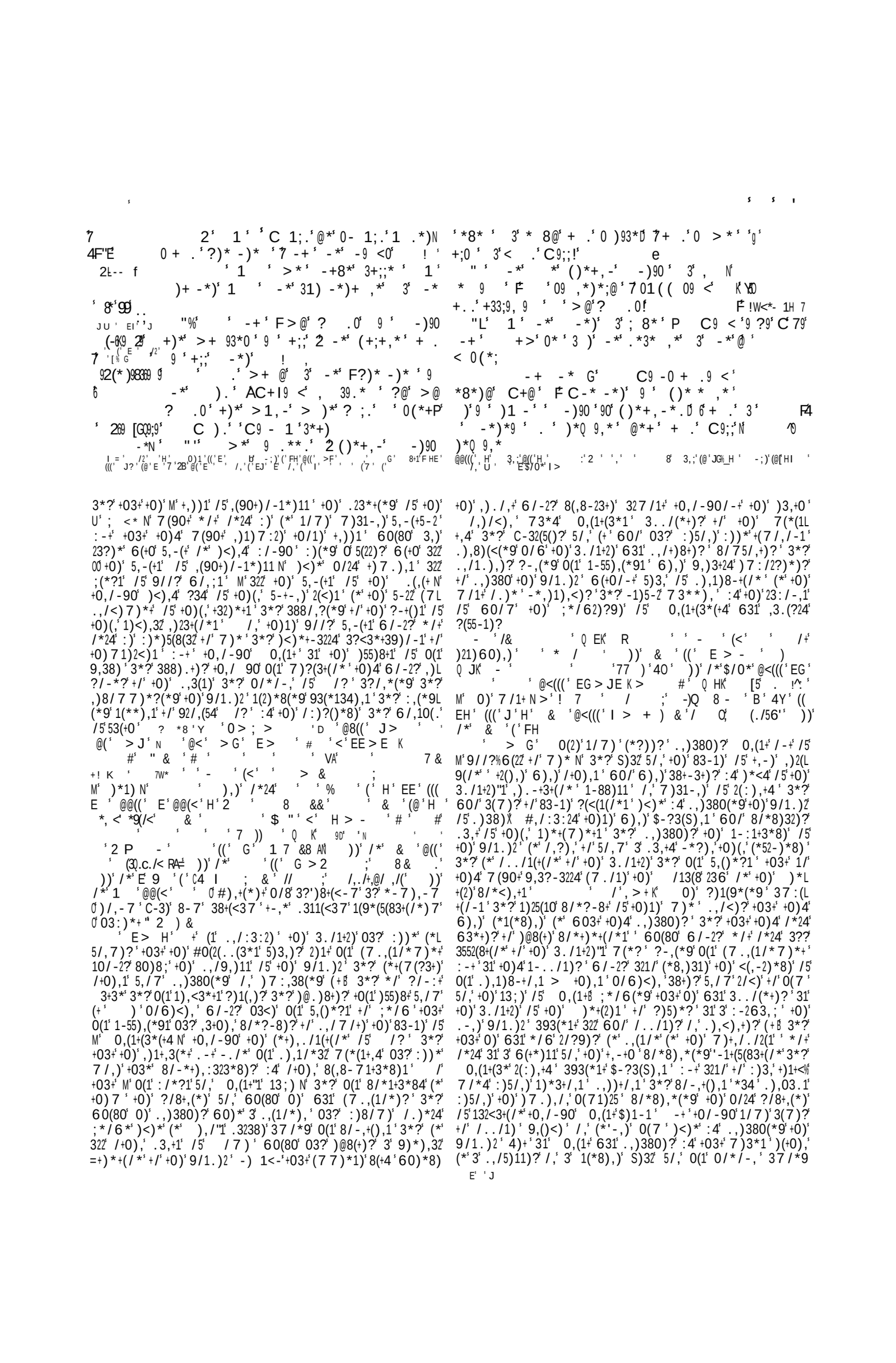
J + (‘)‘ + < ‘ ‘ +

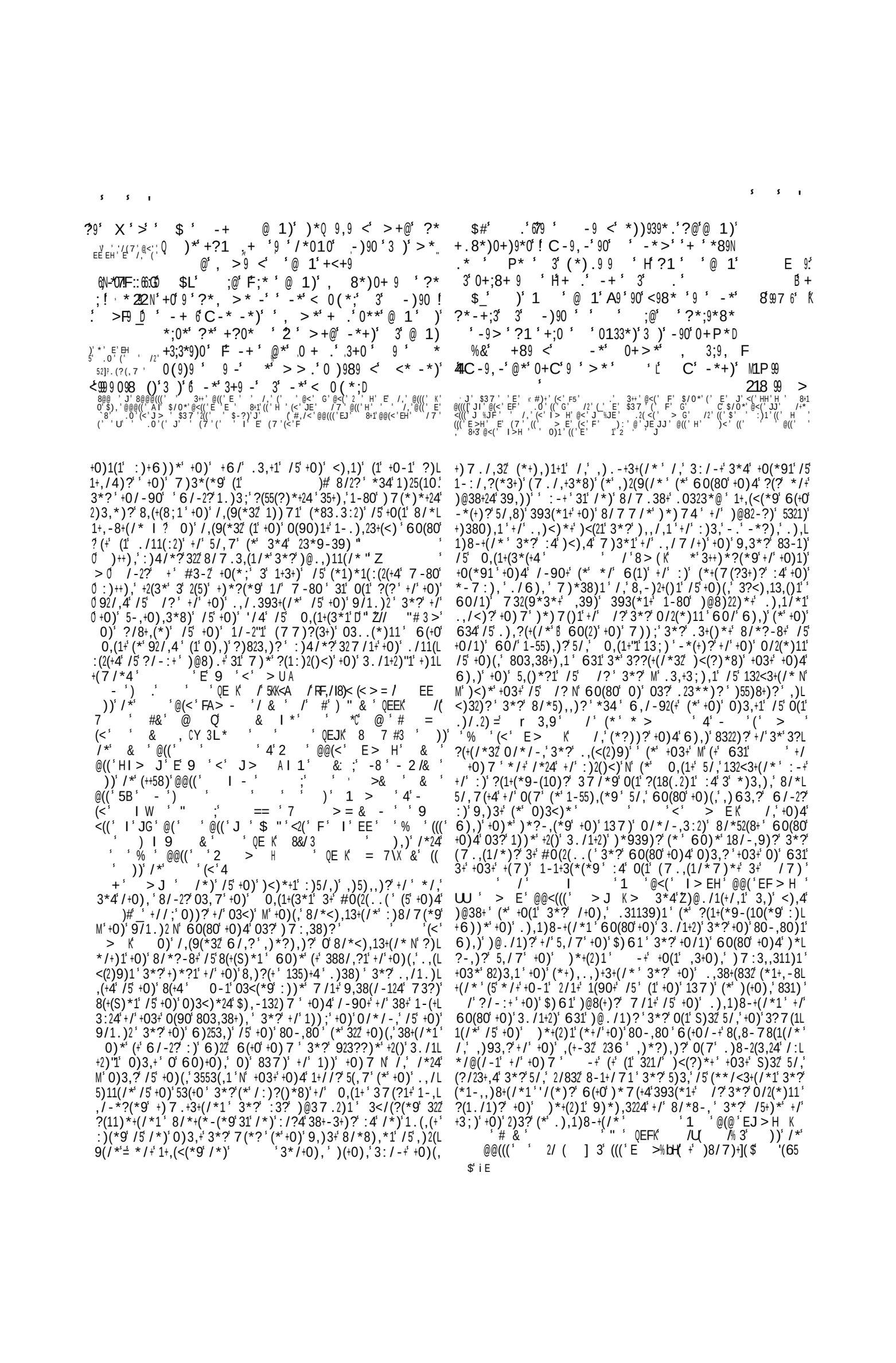
‘

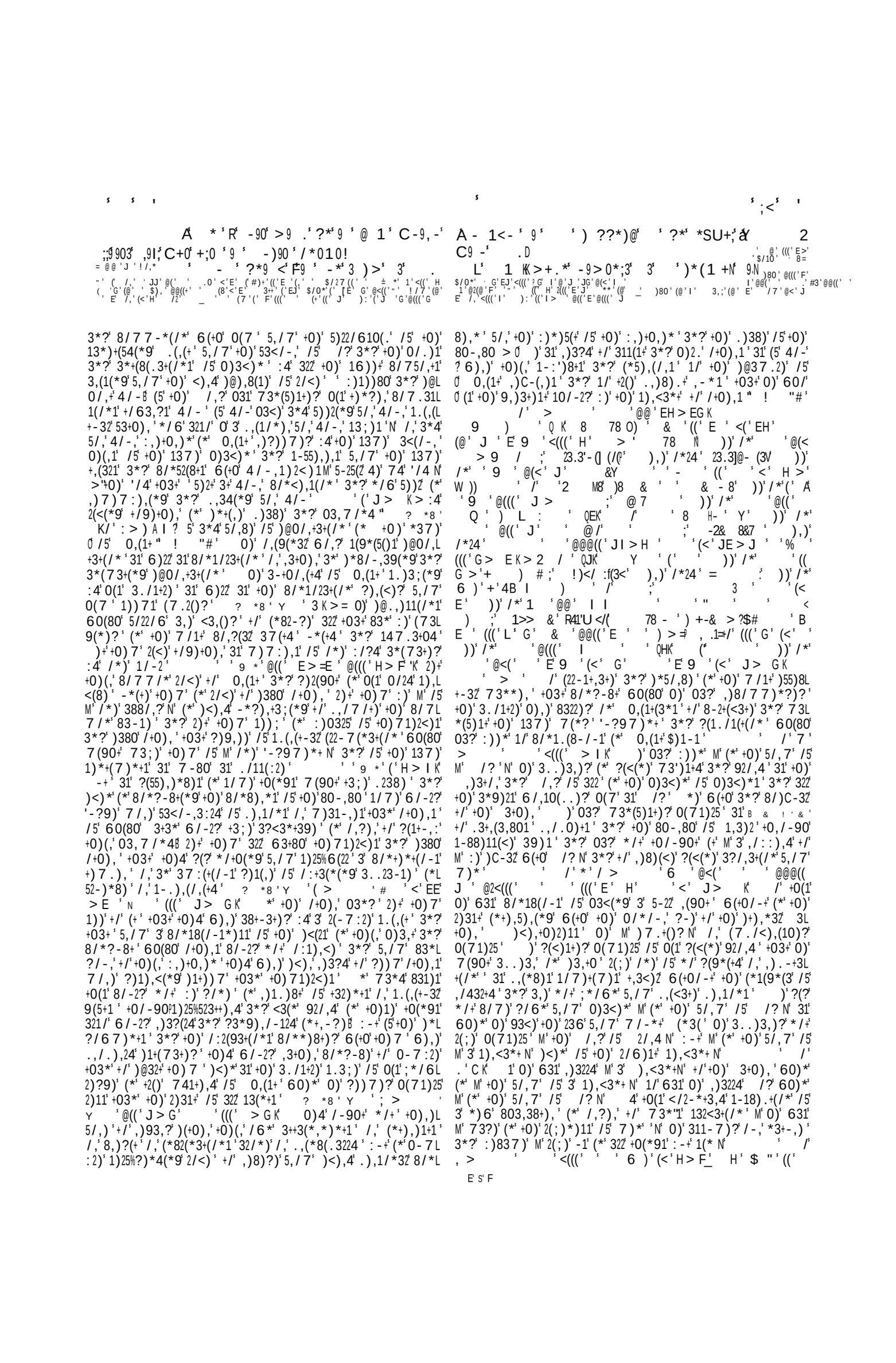
& ‘ 7 3 * *) , ‘ (*‘ 6 0(80‘ +0)‘ 3 . / 1+2)‘ 3*?A‘0(1‘ 311/8(3+)1‘ 6) ,)‘ 2)?‘ +/‘ . 311‘ / 4) , ‘ 5 , / 7 ‘ 1(3‘ (*+/‘ - , / .) ‘ 3*?‘ +/‘ :)9(*‘ +0)(,‘ 23 : / - , 1‘ 3+‘ #0(2(. . (‘ (*‘ 38)?/*(3‘ 31‘ 6)22‘ 31‘ +0)(,‘ 1-88)11‘ 3*?‘ +0)‘ .) , 1)8-+(/*‘ : 4‘ 6 0(80‘ #3-2‘ 3*?‘ (231‘ 6) ,)‘ ?,(<)*‘ +0)*8)‘ 03<)‘ :))*‘ 32,)3?4‘ 8/*1(?),)?‘ ‘ 1 ‘ @<(K‘ 0)‘ 3 . / 1+2)‘ 03?‘ / *8)‘ 35+), 63,?1‘ <(1(+)?‘ #0(2(. . (‘ +0/-90‘ 5) 6‘ . 3,+(8-23,1‘ 3,)‘ ,)8/,?)?‘ ‘ 1 ‘ @@‘ > K‘ 1‘ +0(1‘) . (1+2)‘ 631‘ 73*(5)1+24‘ 6 , (++)*‘ 5, / 7‘ / 7) ‘ 3*?‘ ?-,(*9‘ +0)‘ 23++),‘ . 3,+‘ /5‘ +0)‘ 3 . / 1+2)"1‘ 5(,1+‘ (7 . ,(1/*7)*+‘ (*‘ +03+‘ 8(+4‘ *)3,24‘ +6)2<)‘ 4)3,1‘ 03?‘ . 311)?‘ 1(*8)‘ 0)‘ 5(,1+‘ . ,)380)?‘ 3+‘ #0(2(. . (3‘ : -+‘ +0)‘ 8/*?-8+‘ /5‘ +0)‘ 0,(1+(3*1‘ +0),)‘ 03?‘ -*(5/, 724‘ :))*‘ 1/‘)@) 7 . 23,4‘ 3*?‘ +0)(,‘ 9,3+)5-2‘ 355)8+(/*‘ +/‘ 0(7‘ 1/‘ 5-224‘)<(*8)?‘ +03+‘ 0)‘ 03?‘ / *24‘ +/‘ ,)‘ / (8)‘ /<),‘ +0) 7‘ 6(+0‘ 0)3,+5)2+‘ 9,3+(+-?)‘ 60(2)‘ 0)‘ . / -,)?‘ / -+‘ 0(1‘ . ,34),1‘ 5/,‘ +0) 7‘ 3*?‘ 355)8+(/*3+)24‘ 3*(73+)?‘ +0) 7‘ +/‘ .) , 1)<),)‘ 3*?‘ . ,)11‘ 5/, 63,?‘ (*‘ +0)(,‘ 0)3<)*24‘ 8/-, 1) ‘ / 7)‘ 83-+(/*1‘ (*?)) ?‘ 393(*1+‘ ?)8)(<),1‘ /5‘ ?(55),)*+‘ ?)18,(. +(/*1‘ ‘ (((‘ F > I K‘ 60/1)‘ : 31)‘ 8/*?-8+‘ 3*?‘ 365-2‘ ?/ / 7‘ 0)‘ ?)823,)1‘ (*‘ 7 / 1+‘)@. ,)11(<)‘ +), 71‘ 3,)‘ '/(*)?‘ 6(+0‘ 0(1‘)@0/, +3+(/*1‘ / +‘ /*)‘ 8)*1-,)‘ 0/6)<), ‘ (1‘ . 311)?‘ /,‘ (7 . 2()?‘ /*‘ 3*4‘ /5‘ +0)‘ #0(2(. . (3*1‘ : -+‘ -*C-32(5()?‘ 8/7 7)*?3+(/*‘ 3*?‘ 8/*5(?)*8)‘ ‘ ‘ ((‘ > K‘ +‘ (1‘)<(?)*+‘ +03+‘ . 3 . 0, / ?(+-1‘ 60/‘ 03?‘ :))*‘ 1)*+‘ 6(+0‘ 3‘ 1- . . 24‘ /5‘ 7 / *)4‘ +/‘ +0)‘ 3 . / 1+2)‘ 3+‘ / 7) ‘ 3*?‘ 60/‘ 1)) 71‘ +/‘ 03<)‘ :))*‘ 3‘ . 31+/, ‘ 3*?‘ .) , 03 . 1‘ +0)‘ . , (*8(. 32‘ . 31+/, ‘ / 5‘ +0)‘ 80-, 80 ‘ 8/*<)4)?‘ +0)‘) . (1+2)‘ +/‘ #0(2(. . (‘)‘ 03?‘) (+0), ‘ V:4‘ 0(1‘ ' / - , *)4‘ +/‘ / 7) ‘ / , ‘ : 4‘ 0(1‘ S)32/-1‘ 23 : / - , 1‘ (*‘ 311(1+(*9‘ +0)‘ 3 . / 1+2)‘ 60)*‘ (*‘ +03+‘ 8(+4‘ : , / -90+‘ 3‘ ?3*9), / -1‘ 1(8 ; *)11‘ - . / *‘ 0(71)25‘ +0)‘ +(?(*91‘ /5‘ 60(80‘ 1/‘ 3552(8+)?‘ +0)‘ #0(2(. . (3*1‘ 3*?‘ +0)(,‘ 1/ , , / 6‘ 60)*‘ 73?)‘ ; */6*‘ +/‘ . 3 . 0, / ?(+-1‘ 1/‘ ?(1+,)11)?‘ 0(7‘ +03+‘ +0)‘ 3 . / 1+2)‘ 631‘ (*?-8)?‘ +/‘ 1)*?‘ 0(7‘ : 38 ; ‘ 1 / / *), ‘ +03*‘ 0)‘ 03?‘ (*+)*?)?‘ +0/-90‘ +/‘ 0(1‘ / 6*‘ (*8/*<)*()*8)‘ ‘ ((‘ EH > J K > = 0)‘ 1- : ')8+1‘ +,)3+)?‘ / *‘ 3*?‘ +0)‘ (*1+, -8+(/*1‘ +/‘ :)‘ ?)?-8)?‘ 5, / 7‘ +2() 7‘ *))?‘ */+‘ :)‘ 3*+(8(. 3+)?‘ 0)‘ 3 . / 1+2)"1‘ ?)1(9*‘ (*‘ +0(1‘) . (1+2)‘ Q60(80‘ (1‘ C-(+)‘ /5‘ +0)‘ . , 38+(832‘ ; (*? K‘ 1)) 71‘ +/‘ 0 :)‘ +/‘ 8/75/, +‘ +0)‘ #0(2(. . (3*1‘ -*?), ‘ +0)‘ 8/*8), *‘ +0)4‘ 03?‘)@. ,)11)?‘ 3+‘ +0)‘ *)61‘ /5‘ 0(1‘ (7 . , (1/*7)*+‘ +/‘ 0 80)8 ; ‘ 3‘ . 3,+4‘ 1. (, (+‘ +03+‘ 3. .)32"1‘ +/‘ 03<)‘ : , / ;)‘ / -+‘ 37/*9‘ +0) 7‘ 3*?‘ +/‘ . , / 7 /+)‘ / *‘ +0)‘ 8/*+, 3, 4‘ 3*‘)*+(,)‘ -*(/*‘ +‘ 3*?‘ 03, 7/*4‘ /5‘ 355)8+(/*‘ +/‘ 9-3, ?‘ +0) 7‘ 393(*1+‘ :)(*9‘ 1)?-8)?‘ 5, / 7‘ +0)‘ . -, (+4‘ /5‘ +0)‘ 0, (1+(3*‘ 53(+0‘ : 4‘ $-?3(S(*9‘ 0+)380), 1‘ +/‘ 1- . . / , +‘ +0) 7‘ -*?), ‘ +0)‘ +, (321‘ 6(+0‘ 60(80‘ +0)4‘ 1+, -992)?‘ 3*?‘ 3 : /<)‘ 322‘ +/‘ (*1. (,)‘ +0) 7‘ 6(+0=‘ 8/*8), *‘ A+/‘ 3?/, *‘ +0)(,‘ . , /5)11(/*‘ : 4‘ +0)‘ 7/1+‘) 7(*)*+‘ 3+3(*7)*+1‘ (*‘ +0)‘ ?(<(*)‘ 2(5) " Z ‘ +‘ (1‘ -*?)*(3 : 2)‘ +03+‘ +0)‘ C((1+2)‘ 631‘ 1)*+‘ */+‘ 2/*9‘ :)5/,)‘ +0)‘ +6/‘ 4)3,1‘ /5‘ +0)‘ 3 . / 1+2)"1‘ (7 . , (1/*7)*+‘ 3+‘ / 7)‘ 6),)‘)*?)?‘ 60(80‘ +0)‘ @5/, ?‘ (: 2)‘ 1- . . /1)1‘ +/‘ 03<)‘ +3 ; *‘ . 238)‘ 3 : / -+‘ +0)‘ 82/1)‘ /5‘ ‘ ‘ > 88/, ?(*9‘ +/‘ +0(1‘ ‘ 03<)‘ ?3+)?‘ +0)‘) . (1+2) ‘ Q+0/-90‘ 73*4‘ 5(@‘ 3*‘) 3,2(), ‘ ?3+)‘ 5/, ‘ (+K‘ /*‘ 3‘ 5-22‘ 8/*<(8+(/*‘ +03+‘ 7/,)‘ 4)3,1‘ 6) ,)‘ 1 .)*+‘ (*‘ +0)‘ <3, (/-1‘ 23 : / - , 1‘ /5‘ +0(1‘ 9,)3+‘ 3 . / 1+2)‘ +03*‘ 3,)‘ 9)*), 3224‘ 1- . . /1)?‘ 4)+ ‘ 3+‘ +0)‘ 137)‘ +(7)‘ */+‘ 8/*1(?), (*9‘ +0)‘ 1- : ')8+‘ 31‘ /5‘ 9,)3+‘ (7 . /, +3*8)

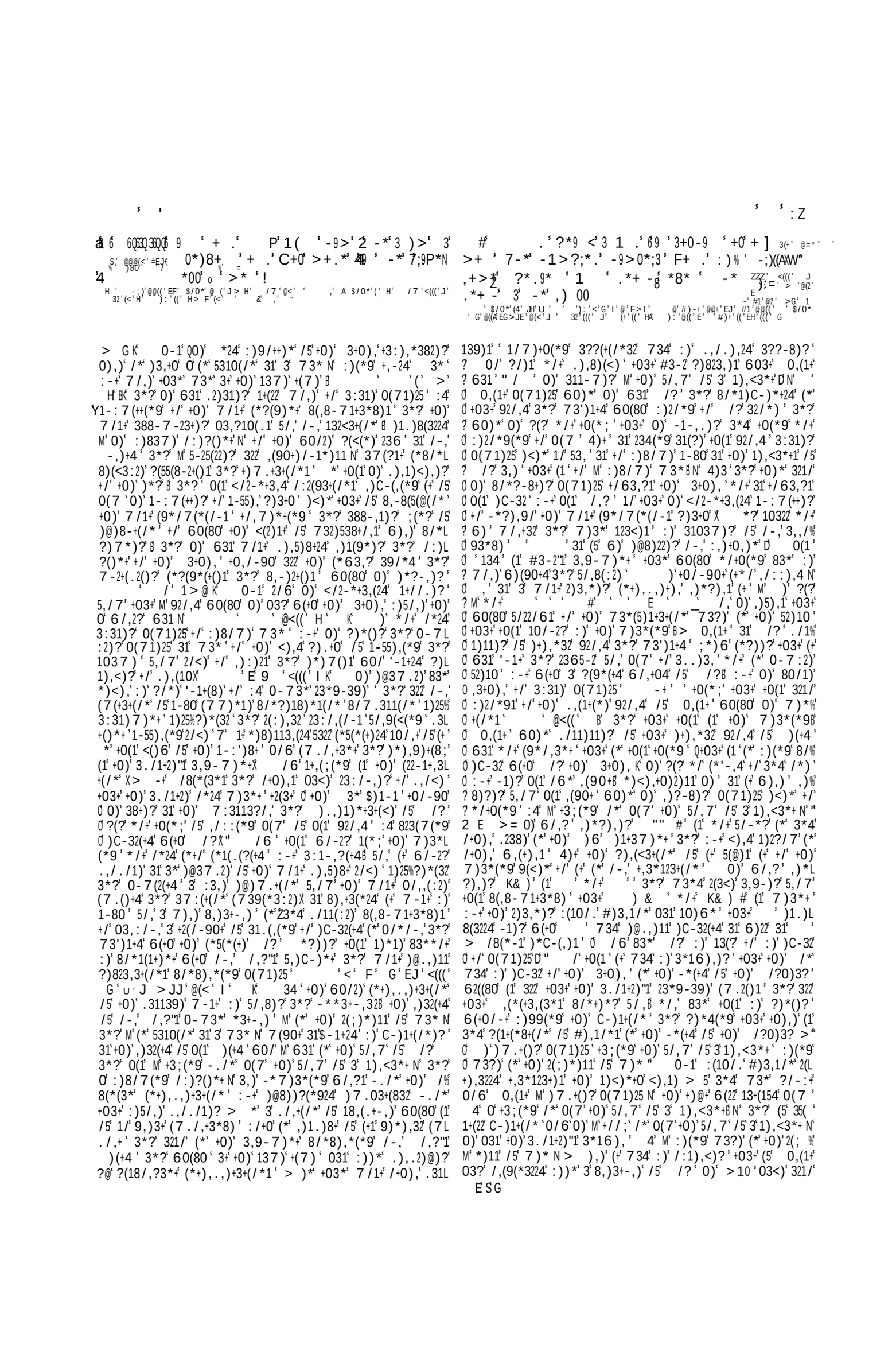
H QMQHHQ

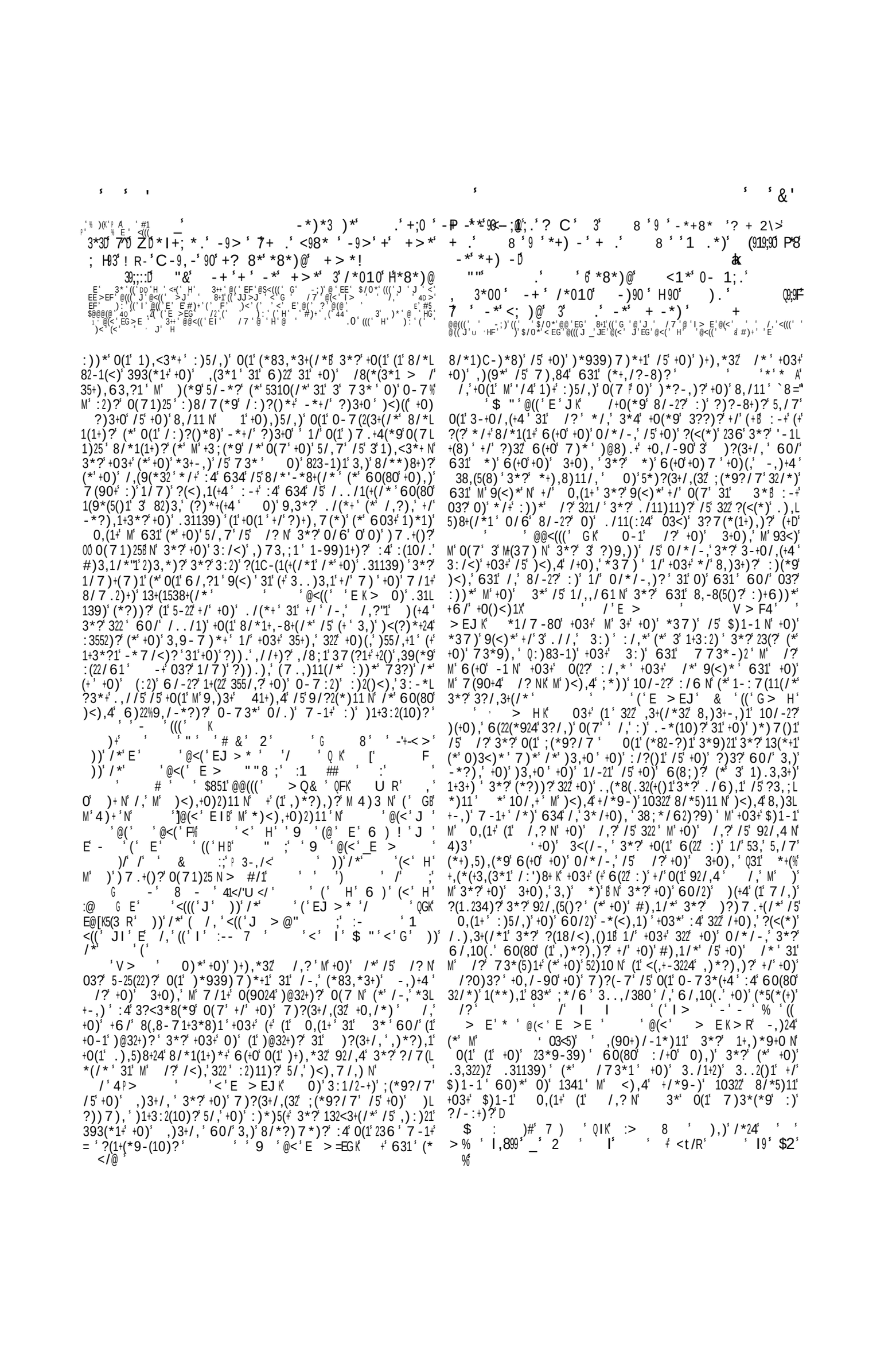


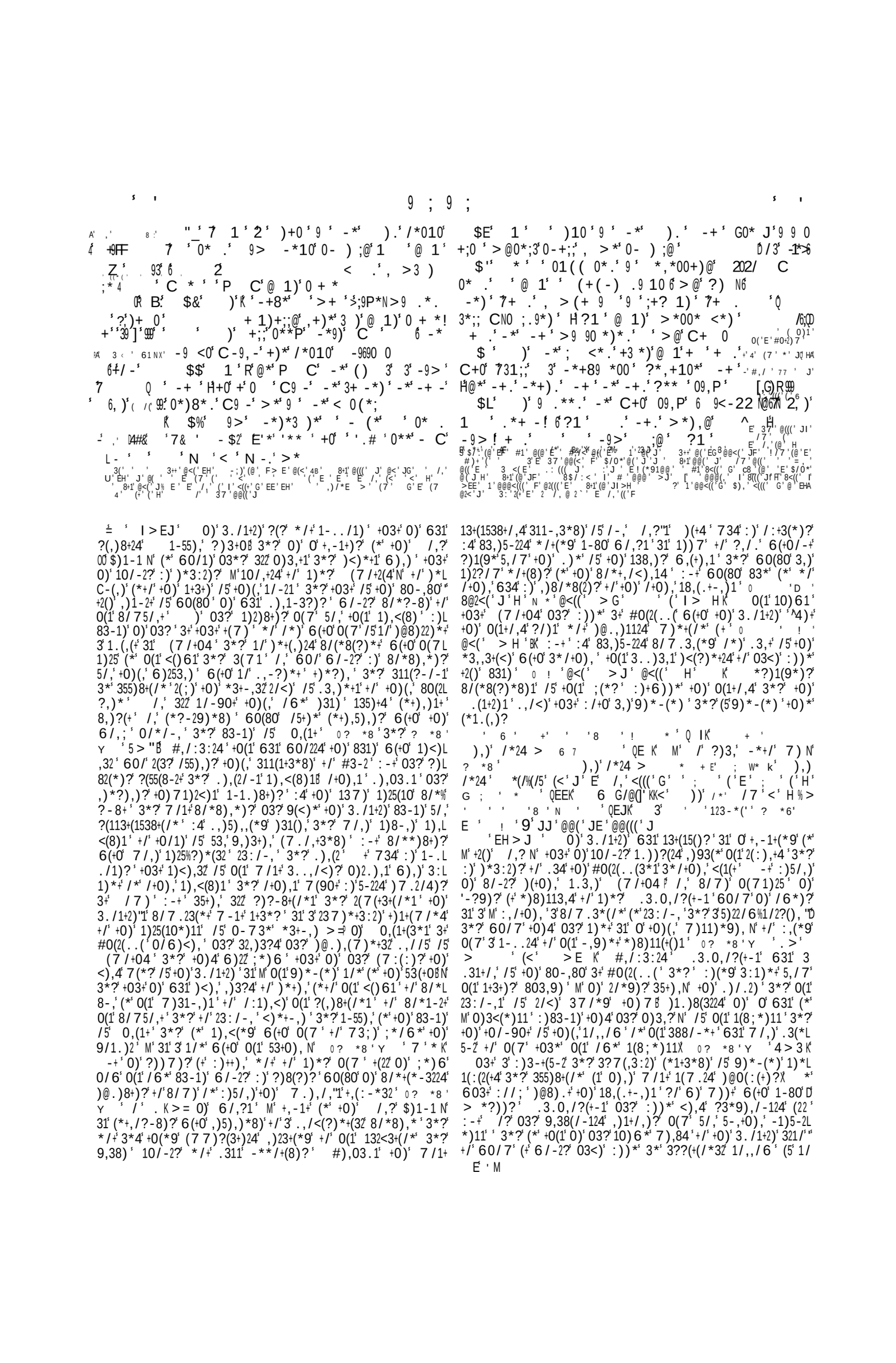


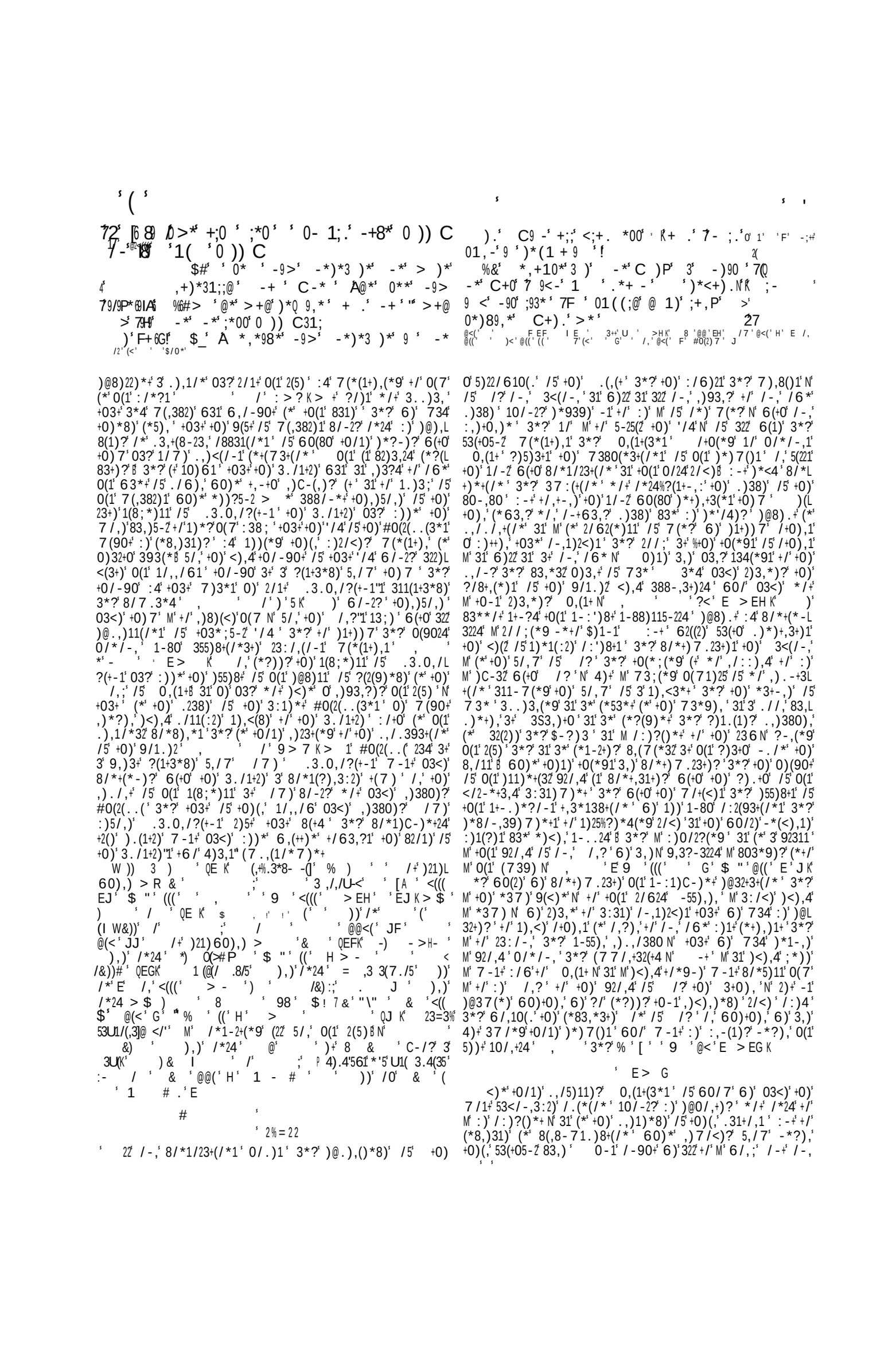




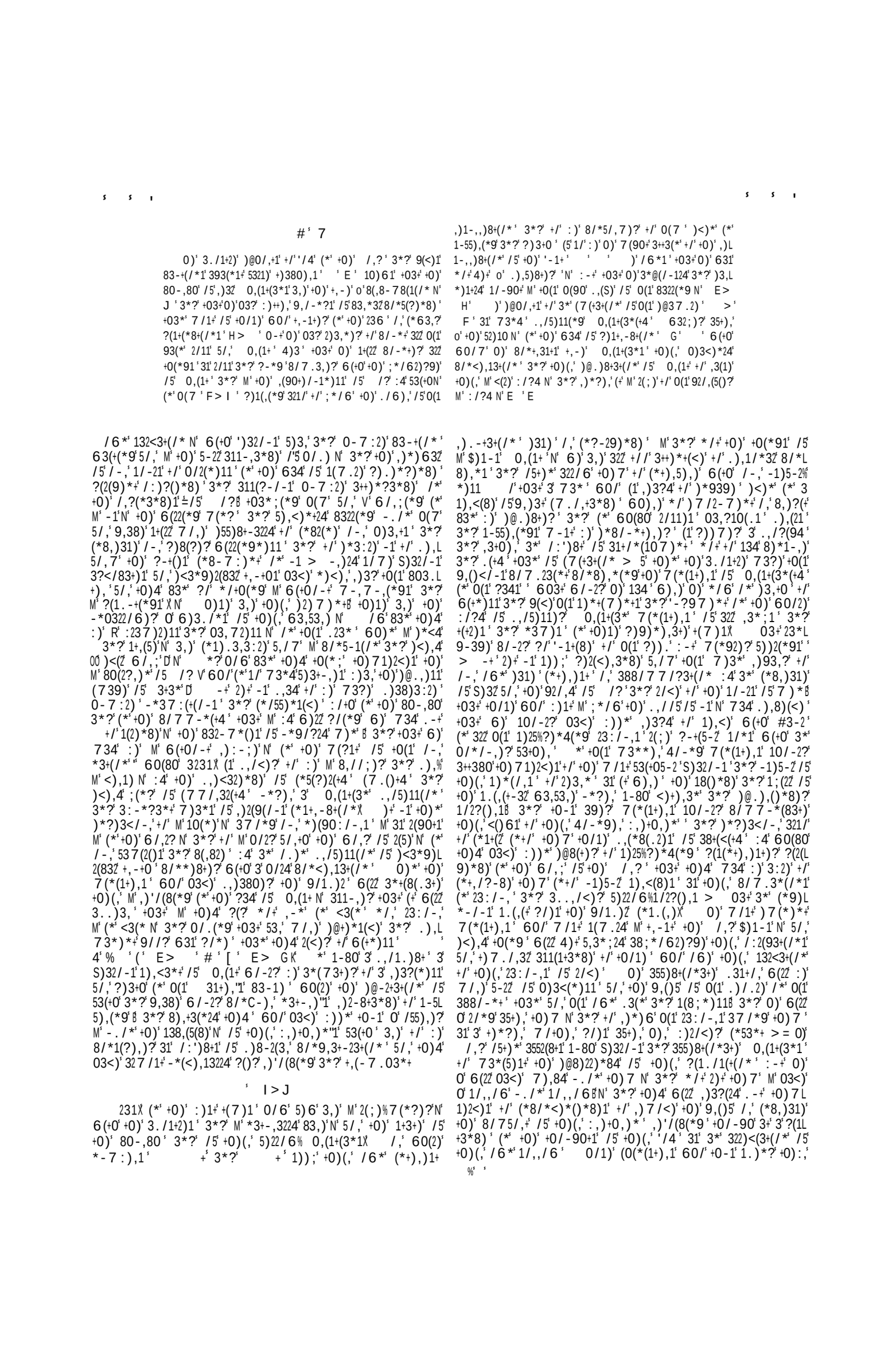


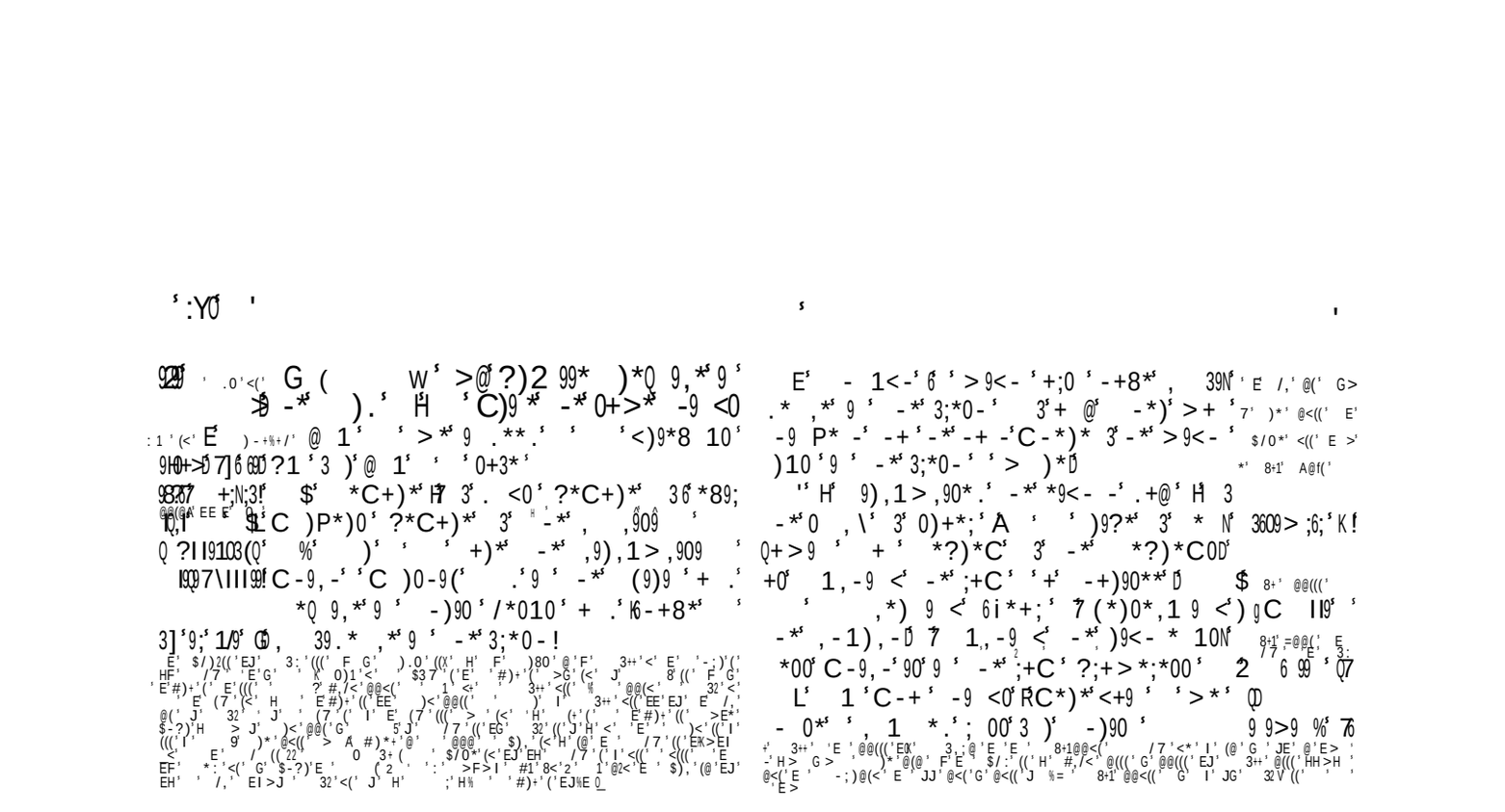






7



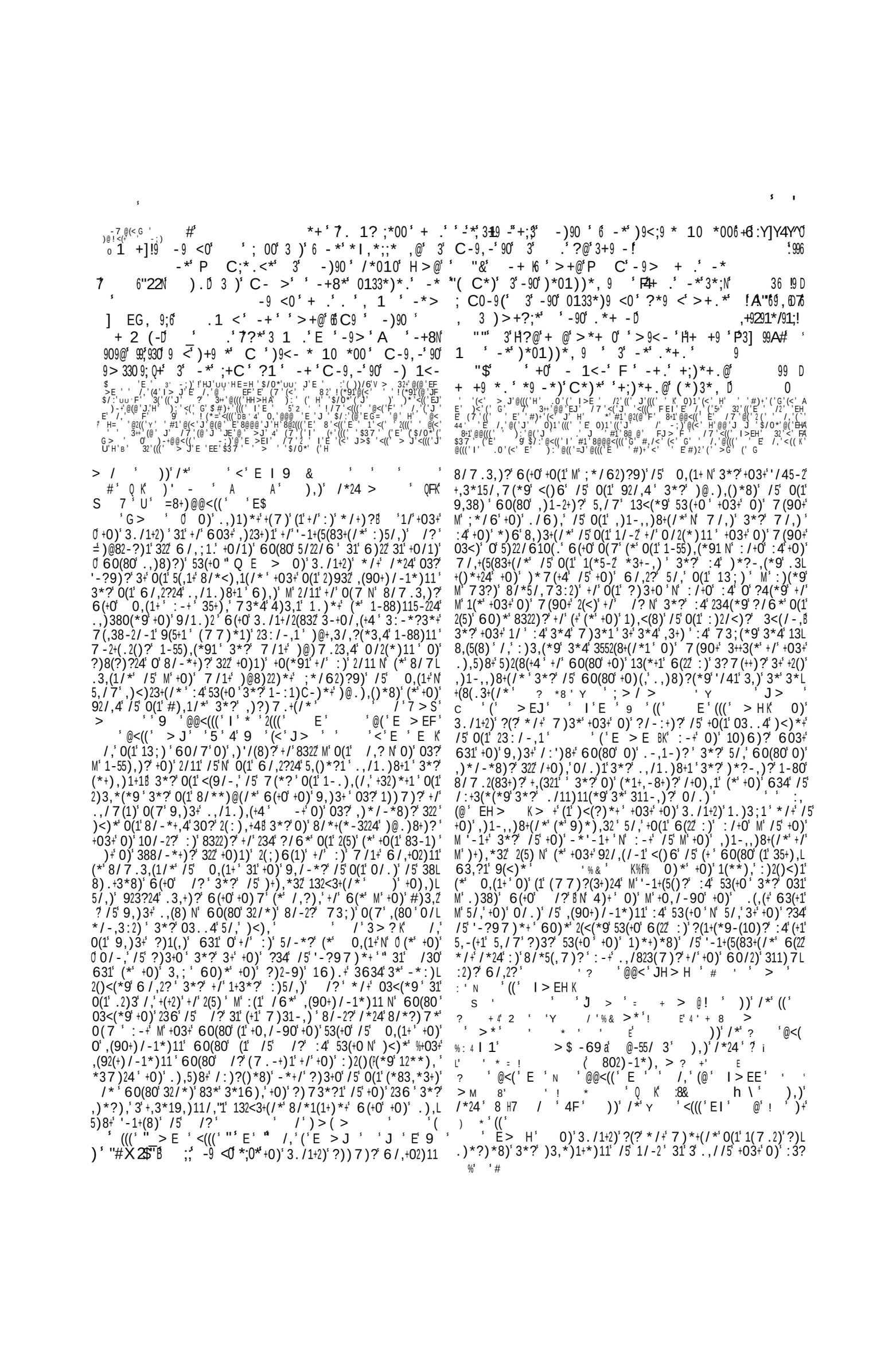


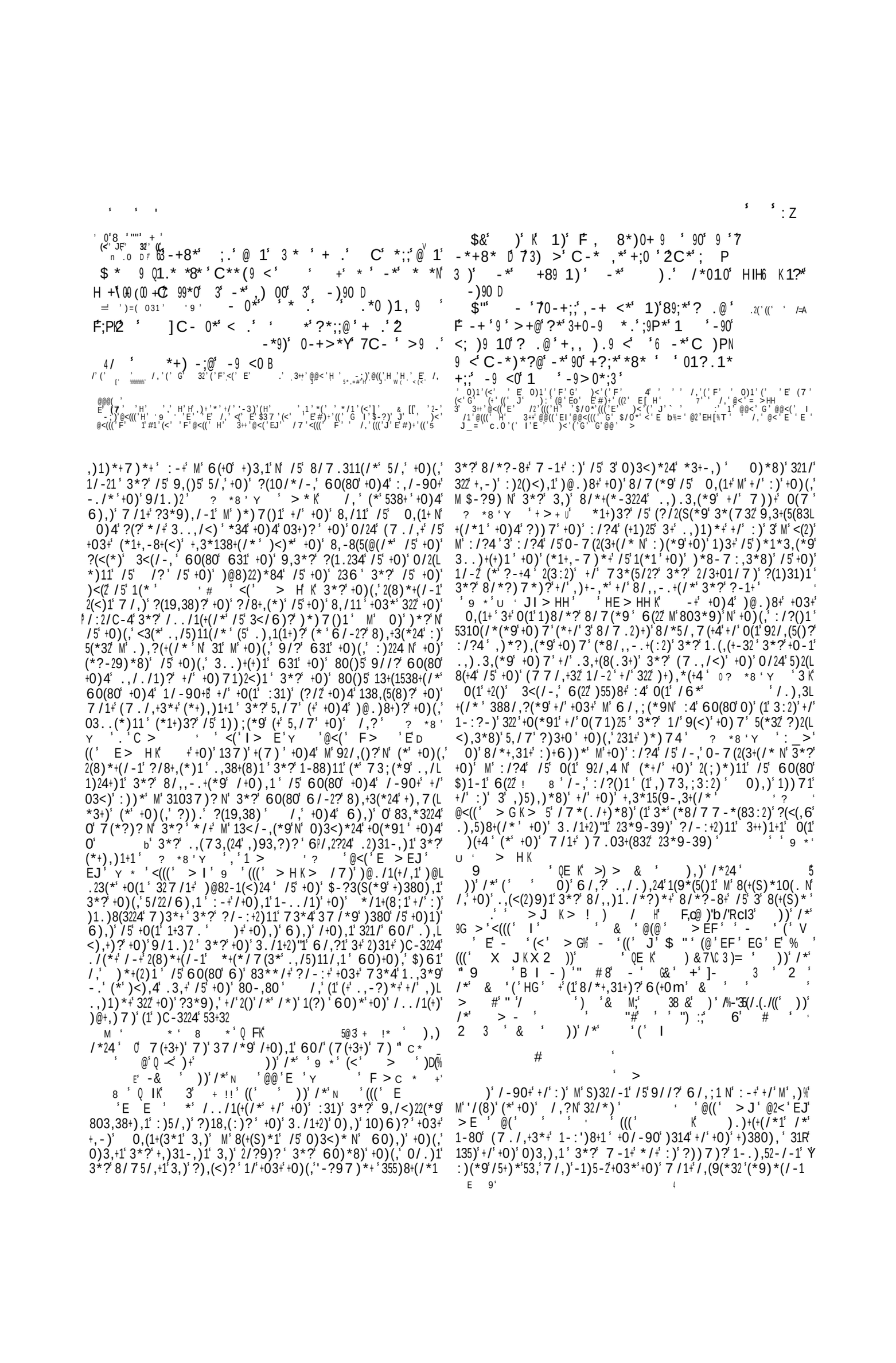
1+,)*9+0' 3*?' ?(1,)93,?')<)*' 2(5)' 3*?' 0)32+0' (*' 0(1' 83-1)' + .' +/' M' 1-..24' +0)' 238;' /5' 1),<(8)'N' /5' +0/1)' 60/' 3,)' (*83.3:2)' /5'.),5/,7(*9'(+' 10/-2?' :)' .)8-2(3,24' 0/*/-,)?' :4'+0)' 80-,80' 3*?' :4')<),4' 0,(1+(3*B 4)+' */*)' 10/-2?' 6(+0/-+' *)8)11(+4' :)' ;).+' <),4' 2/*9' 5,/7' +0)' .)/.2)' /5' +0),(,'/6*' .)8-2(3,'803,9)

%&'('A;' ' > ' 0)' 3./1+2)' ?)) 7)?' (+' *))?5-2' +/' 82/1)' +0)' .,)8)?(*9' .,38+(832')@0/,+3+(/*1' :4' 8322(*9' /*' 0(1' :,)+0,)*' 3+' #0(2(..('+/' 0',)'/(8)'(*' +0)' /,?'N' $)1-1' 3*?' (*' +0),(',)23+(/*' +/' 0(7' 31' +0),(' 2/,4' 3*?' 32<3+(/*' ['(<'HK' 0(1' 0)' 03?' /5+)*' (*8-283+)?' :4' <3,(/-1' 7)+0/?1' 3*?' (+' 631' */+' ?(55(8-2+' 5/,' 0(7'+/' ,).)3+' +0)' 137)' (*1+,-8+(/*B :-+' (+' 631' 135)' 5/,' +0)7' 3*?' 1-(+)?' +/' +0),(' 3552(8+)?' 8(,8-71+3*8)1' /7)' +0(*;' 0)' 7)3*+' +03+' (+' 631')314' 5/,' 0(7':-+' 135)' 5/,' +0)7' +/' 6,(+)' +0)' 137)' +0(*91' +/' +0)7' 60(80' 0)' 03?' 6,(++)*' +/' /+0),' 80-,80)1' Y ' 3>8K>)' 321/' 63,*)?' +0)7' +/' M' :)63,)' /5' M' ?/91N' 0)' $)61' 8/*+)7.+-/-124' 8322)?' +0)')*+(2)1' .' :-+' +0)' :(9/++)?' 1)25(10' $-?3(S(*9' +)380),1' 3,)' 1-..1)?' +/' :)' 0),)' (*+)*?)?' :4' +03+')7:2)7' 31' +0)4' 8/-2?' 536*' /*' +0/1)' +03+' 53</-,)?' +0)7' 4)6),)' 9,))?4' 1*3,2(*9' 3*?' ,)3?4' +/' :(+)' /,' ?)</-,' 1-80' 31' /../1)?' +0)7' #),03.1' 3./1+3+)1' 5,/7' 0,(1+(3*(+4' 3,)' 7)3*+' 0?*8' Y ' ? > ' * ' <(' I > E')' (((' > F' ? ' <((' K' 2()' M')<(2 6/,;),1' N' 734' 321/'(*82-?)'+0/1)' +)380),1' 3*?' .,/5)11/,1' 60/'.),<),+)?' +0)' ?/8+,(*)1' /5' 9,38)' 3*?' (*?-29)?' +0)71)2<)1' (*' 1(*' 31' 3'.3,+' /5' +0),(' ((,(1+(3*' 2(:),+4')' 321/' 63,*)?' 0(1' :,)+0,)*' +/' M' :)% 63,)' /5' +0)' 8/*8(1(/*N' /,' +0)' ! 8' ,' +0)' $-?3(S),1' 23(?' 7-80' 1+,)11' /*' ! 8' '+0)' 5/,)1;(*' +0/-90' +0)4' ?(?' */+' 7/,+(54' +0)' ?))?1' /5' +0)' :/?48' +0)4' 63*+)?' +/' ! ' ' +0)')*+(2)1' 5,/7' +0)' 80-,80' :-+' +0)4' ! ' ' +0)7L 1)2<)1' 3*?' /+0),1' 5,/7' 132<3+(/*' :4' +0)(,' ?).)*?)*8)' /*' +0)' 6/,;1' /5' +2()' 236' 0?*8' Y ')' 5K' 0)' 0/*/-,L 3:2)' +(+2)' /5' M' +0)' 8(,8-78(1(/*N' ?(?*/+' +0),)5/,)' :)2/*9' +/' +0)7' 03+' 3*8()*+' ,+)' 631' */' 2/*9),' /5' 3*4' <32-)B 0,(1+(3*1' 6),)' M' +0)' +,-)' 8(,8-78(1(/*N' +0)' 8/<)*3*+' .)/.2)' /5' /?' +0)' 1.(,(+-32' 1))?' /5' :,303 7B M' +0)' M',(90+)/-1*)11' /5' 53(+0N' 631' 1)32)?' +/' +0)7' :4' +0)' 8(,8-7L 8(1(/*' /5' +0)' 0)3,+' /5' 60(80' :3.+(17' 631' +0)' /-+63,?' W9-' 0 ' Y ' ((' E >EI' (<' I > FK' 0)4' M' 6/,10(..)?' /?' (*' +0)' .(,(+N' */+' 7),)24' 388/,?(*9' +/

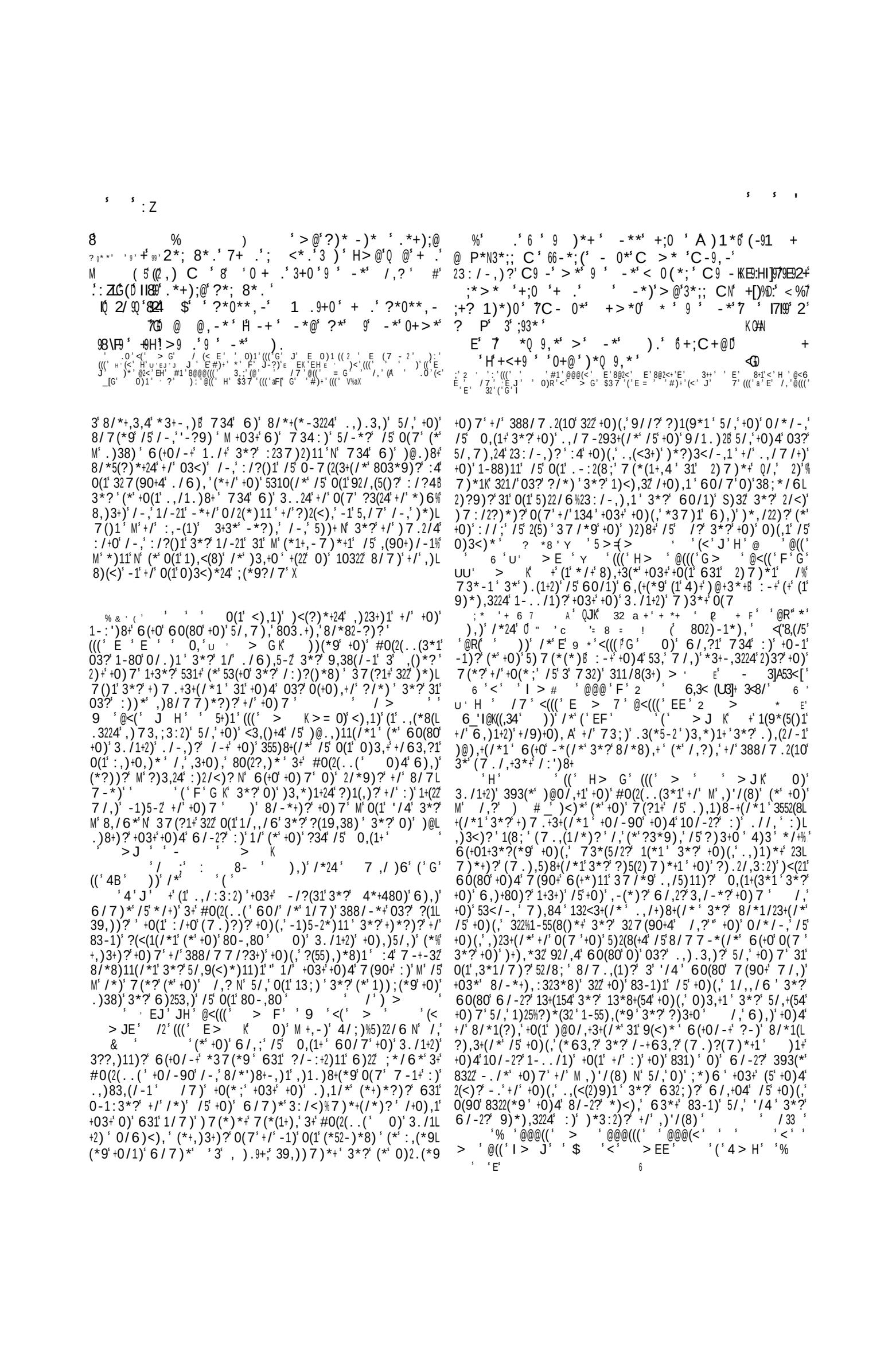
)@+),*32' 5/,71' :-+' 1.(,(+-3224' 6(+0' +0)' 0)3,+1' 3*?' -*?),' +0)' +)380(*9' /5' +0)' /24' .(,(+' 0 'N '(<'E > EHK' 3*?' +0)4' M',)'/(8)?N' /,' o' 92/,()?N' (*' $)1-1' 0,(1+' +0)' -:')8+' /5' 322' +0)' .,/.0)8()1' 3*?' +0)' -:1+3*8)' /5' 322' +(,)' 103?/61' /5' +0)' /2?' ?(1.)*13+(/*' 3*?' +0)4' o' 03?' */' 8/*% M' 5(?)*8)' (*' +0)' 52)10' N' /,' (*' 3*4' +0(*9' 60(80' 73*' 7(90+' ./11)11' 60(2)' -*,)9)*),3+)' 3*?' 3*' -*:)2()<),' 0?*8' /'9>=;> ' D '('EJ>E K>=0)' 3./1+2)' ?(?*/+' +0-1' .-+' 0(71)25'/*' 3' 2)<)2' 6(+0' +0)')*+(2)' 8/*<),+1' :)L 83-1)' 0)' 03?*/+0(*9' /5' 3' 83,*32' /,')@+),*32' *3+-,)' +/' ?)L .)*?' /*B 5/,' (5' 3*4' 73*' 1-../1)?' 0(71)25' +/' 03<)' ?(1L +(*8+(/*1' /5' +0(1' ;(*?' (*' 60(80' +/' 92/,4' 0)' 8/-2?')<(*8)' +03+' 0)' 03?' 7/,)')' 03?' :))*' 8(,8-78(1)?' /*' +0)')(90+0' ?34' 388/,?(*9' +/' +0)' 236' 3*?' 8-1+/7B 0)' 8/-2?' +,38)' :38;' 0(1'9)*)32/94' +/' 1,3)2' 3*?' :,3037B 0)' 631' /5' +0)' +,(:)' /5')*'37(*' 60(80' 631' ?)18)*?)?' 5,/7' 3803)2' +0)' 6(5)' /5' $38/:"1'80/(8)' 3*?' 60(80' *)<),' 3./1+3+(S)?' 5,/7' +0)' 6/,10(.' /5' /?' 3+' +0)' +)7.2)' 31' 7/1+' /5' +0)' /+0),' +,(:)1' 03?*?/*)' /+0' 0(1' .3,)*+1' 6),)'):,)61' 1/' +03+' 0)' 631' *)(+0),' :/,*' */,')?-83+)?' 3')22)*(1+' $)6' 60/' 7(90+' :)' 1-../1)?' 2)11')@38+' (*' +2()' 236' 1' 3' #03,(1))' 0)' 03?' :))*' .)8-2(3,24' 1+,(8+' :/+0' (*' +0)' /13(8;' 8),)L 7/*(0)1' 3*?' +0)' +,3?(+(/*1' /5' +0)')2?),1B 0(1' .),1)8-+(/*' /5' +0)' 80-,80' .,/<)?' 0(1' S)32' 5/,' +0)' $)6(10' ,)2(9(/*' 0' # ' (' > HK' 3*?' 0(1' 60/2)' 8/*?-8+' 631')@+),L *3224' 1/' 8/*5/,73:2)' +/' +0)' 2)++),' /5' +0)' 236' +03+' (*' ,)L 1.)8+' /5' +03+' ;(*?' /5',(90+)/-1*)11' */' /*)' 8/-2?' 234' 3*4' +(2(*9' +/' 0(1' 803,9)' 0?*8' Y ' > + > ' ? ' @(@' > EE' Y ' <((' I > EK' -+' 322' +0/1)' +0(*91 60(80' 0)' /*8)' ?))7)?' 7/1+' 3?<3*+39)/-1' +/' 0(7' 3*?' 8/*?-8(<)' +/' 0(1' 388).+3*8)' 6(+0' /?' 31' 6)22' 31' +/' 0(1' ,).-+3+(/*' 3*?' .,)5),7)*+' :)' 3+' 2)*9+0' 03?' 2)3,*)?' +/' M' 388/-*+' 2/11' 5/,' 0,(1+' N' :)(*9' 5-224' 311-,)?' +03+' (5' 0)' ?).)*?)?' /*' +0)7' /,' 82)3<)?' +/' +0)7' +0)4' 6/-2?' .,)L <)*+' 0(1' 132<3+(/*' :4' +0)' 9,38)' /5' +0)' 9/1.)2')' 03?' +0),)5/,)' 6(22(*924',)*/-*8)?' +0)7' 322' 31' +0)' 7),803*+' (*' 3' 1+/,7' 831+1' /<),:/3,?' 0(1' 7/1+' <32-3:2)' .,/.),+4' 2)1+' (+' 10/-2?' 8831(/*' +0)' 2/11' 5' 0(1' 2(5)' 0 ' ' (' I > E ' N ' ('H > ' ? ' @(((' HH > H ' ! ' @@<((' G I K

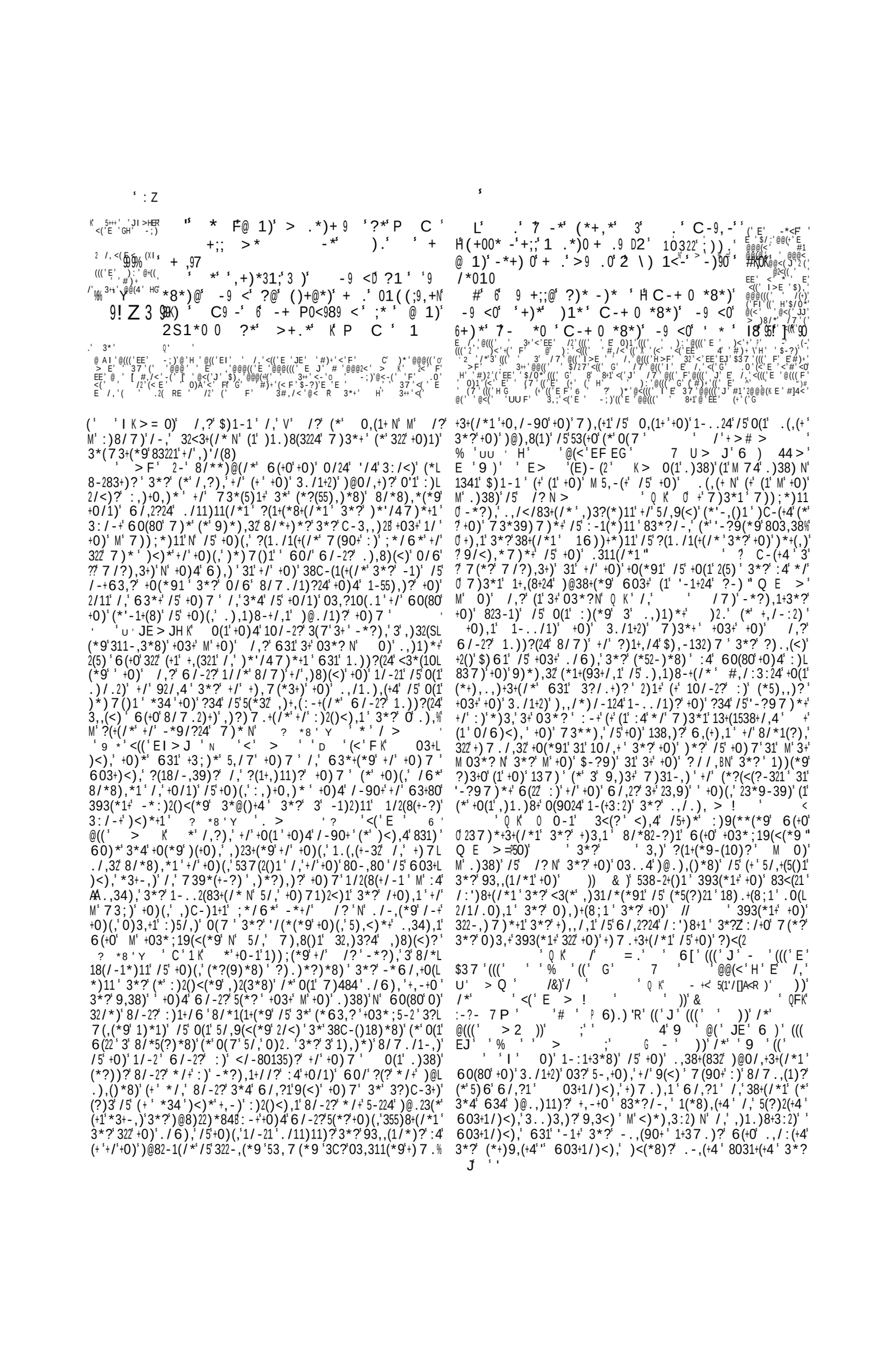
6 & ' Q K' @<+'./<'))' /*' ' @@<' E ' @((' I - ' ' QEK' !R /'/(_'<'),)' /*24' P ' @RDR c5Q<3K' &) ' ' @@(' ' ' = ' @<(((' EG' 2 ' /*+,31+)?' 6(+0' /H H' J' ' 3 3 8 ' QJK' !R/% J'

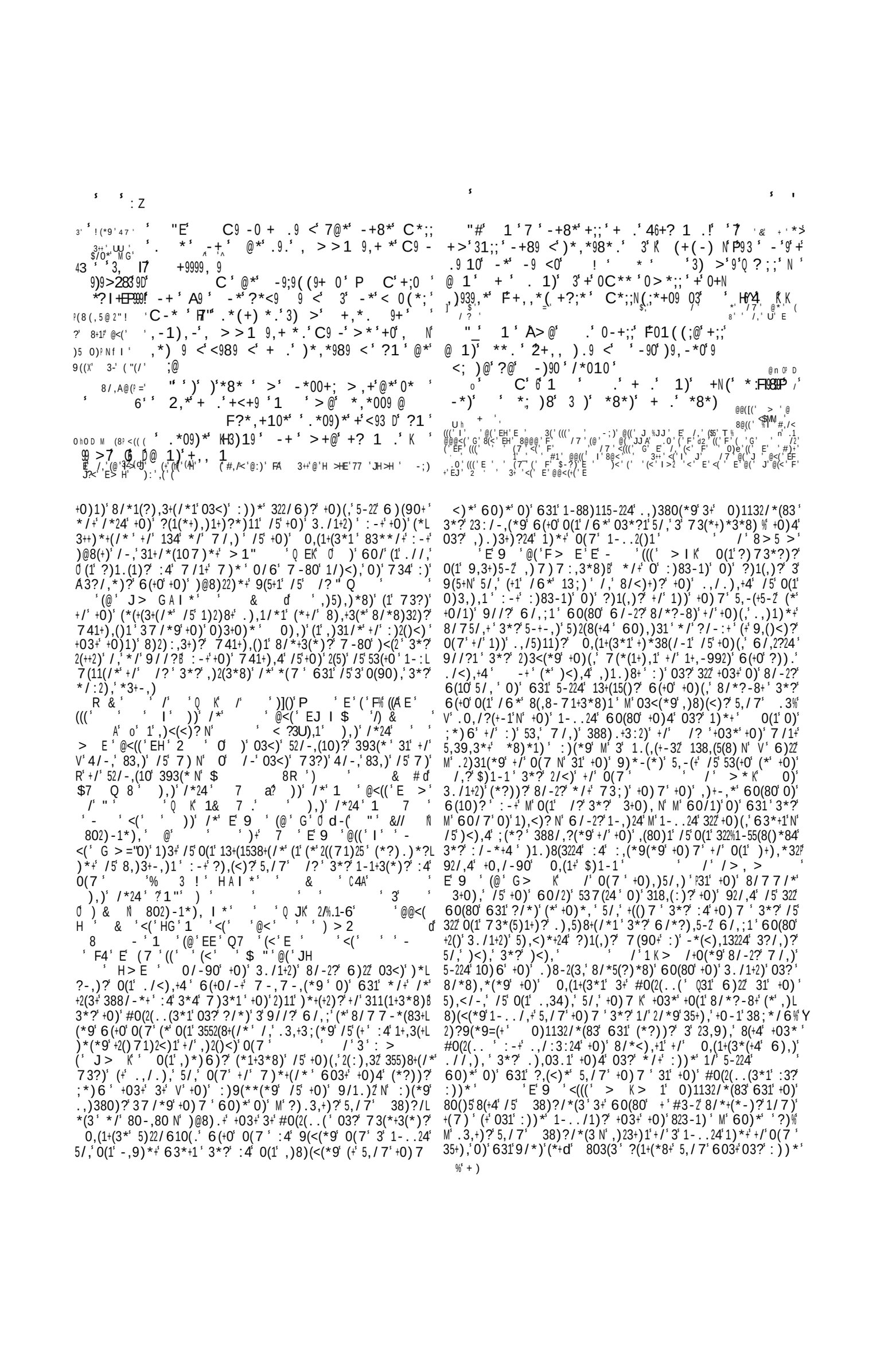




= H QT







+(’)’ " I "’%2J "]

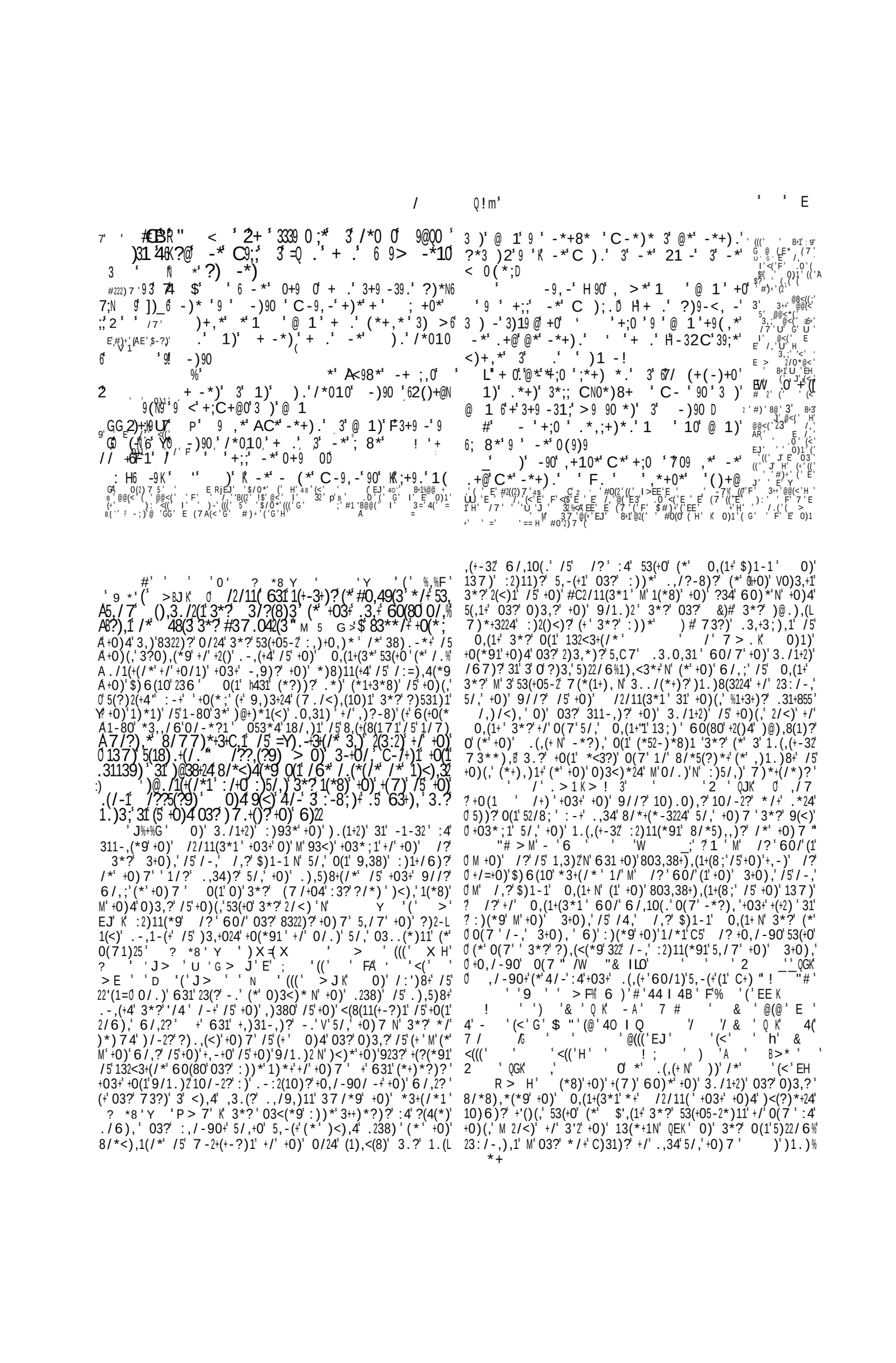
’

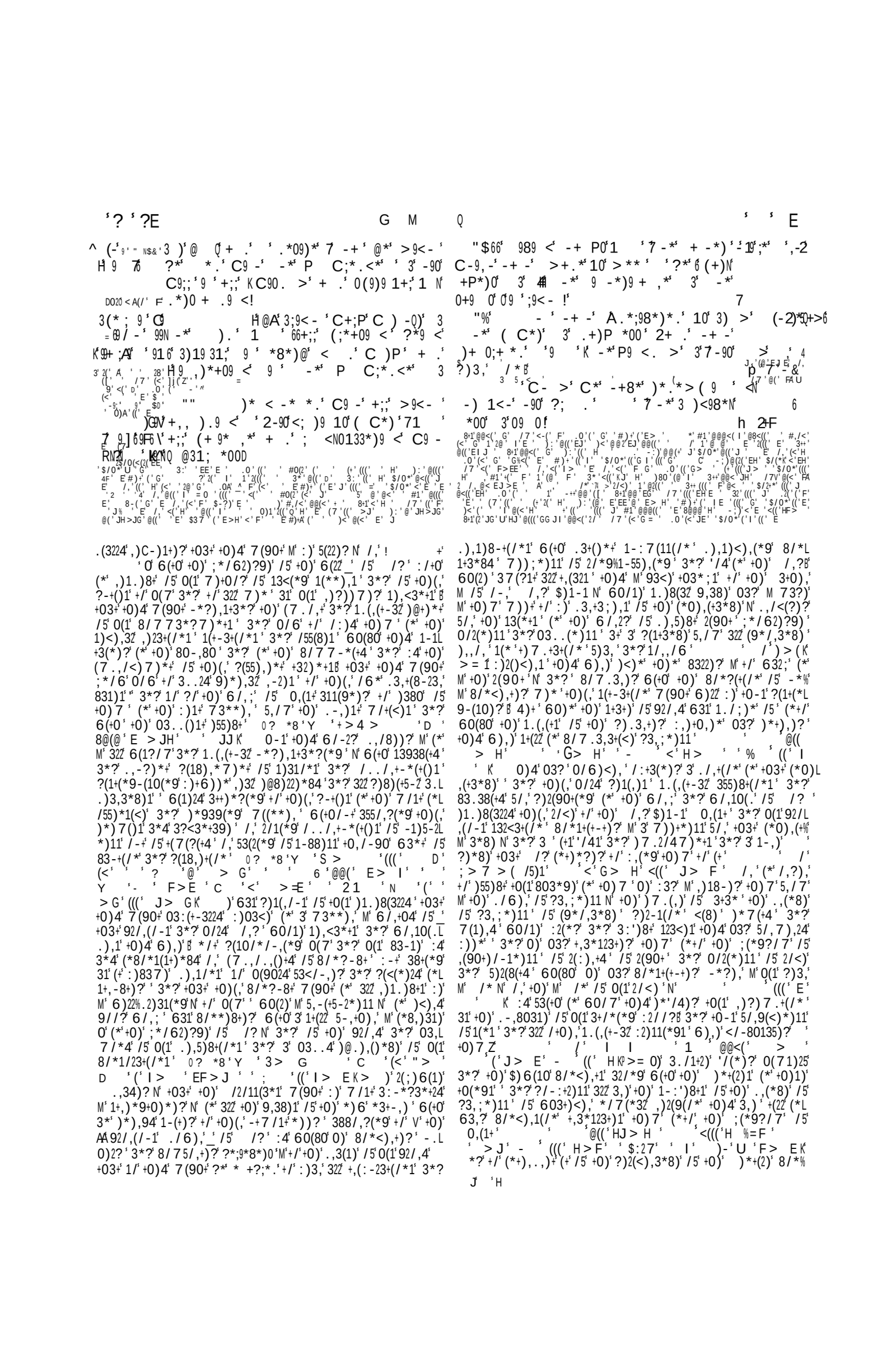
’ 631’3’ ./.-2/-1’8(+4’/5’#0,49(3’:’ 1(3’ (*/,’*)3,’+/’ 3/?(8)3’3*?’ (),3./2(1 > +’(1’*/+’,)8/,?)?’+03+’ +’#3-2’03?’:))*’+0),)’*’ 3*?’+0)’9)*),32’+)1+(7/*4’/5’3*+(C-(+4’53</-,1’+0)’/.(*(/*’+03+’ .3.0,31’/,’1/7)’/+0),’)<3*9)2(1+’1)*+’:4’+0)’3./1+2)’5,/7’ .0)1-1’5/-*?)?’+0)’80-,80’3+’ /2/11)’ 0(1’1)*+(7)*+’0/6)<),’031’/5’23+)’ :))*’7-80’8/*+,/<),+)?’ +’?/)1’*/+’(*?))?’3..)3,’+/’:)’3’73++),’/5’7-80’8/*1)C-)*8)’+/’-1’3*?’’37’*/+’?(1L ./1)?’+/’)*+),’/*’1/’-*(*+),)1+(*9’3’8/*+,/<),14’4)+’’7-1+’9(<)’74’?)8(?)?’ ’+03+’+0)’)<(?)*8)’393(*1+’+0)’ 3./1+2)"1’03<(*9’:))*’3+’ /2/11(’(1’53,’1+,/*9),’+03*’3*4’60(80’031’:))*’3??-8)?’/*’+0)’355(,73+(<)’1(?)’/5’+0)’ C-)1+(/*’ 0),)’(1’3’9,)3+’1(7(23,(+4’:)+6))*’+0(1’).(1+2)’3*?’+03+’+/’+0)’ .0)1(3*1’3*?’(+’1’9)*),3224’1-../1)?’ +03+’+0)4’6),)’6,(++)*’3:/-+’+0)’137)’+(7)’3*?’1)*+’:4’+0)’137)’7)11)*9),’)<)*’ 480(8-1’+0/-90’ *)1(7-1’ :)(*9’3’ /2/11(3*’60/’388/7.3*()?’ 480(8-1’(1’*/+’7)*+(/*)?’(*’+0)’).(1+2)’+/’+0)’ .0)1(3*1’ ’(<’F> H’ ’I K’ > +’(1’../:3:2)’+03+’+0)’3./1+2)’:3?’0)3,?’ /5’1/7)’+)380),1’60/’9,35+(*9’0)3+0)*’ .0(2/1/.04’32/*9’6(+0’+0)’+,3L ?(+(/*’/5’+0)’#03,(1))1’/*’+0)’,(+-32’236’/5’ /1)1’03?’8/,,-.+)?’+0)’9/1.)2’:4’+0(1’0)+),/9)*)/-1’7(@+-,)’3*?’6),)’ 3++)7.+(*9’+/’?,36’31(?)’+0)’ /2/11(3*1’)’+0),)5/,)’.3,+(8-23,24’63,*)?’+0)7’393(*1+’+0)1)’?)8)(<),1’3*?’393(*1+’ 322’60/’)(+0),’:4’1-.),1+(+(/-1’/:1),<3*8)1’/,’.0(2/1/.04’3++)7.+)?’+/’1)?-8)’+0)7’5,/7’M’+0)’1(7.2(8(+4’/5’ 0,(1+N’ (*’60/7’32/*)’N’+0)4’6),)’8/7.2)+)N’3*?’03?’)<),4’+0(*9’60(80’+0)4’8/-2?’./11(:24’63*+’/,’ ’31’,)3224’ 8/*?-8(<)’+/’+0)(,’)?(5(83+(/*’3*?’132<3+(/*’ 0)1)’83-+(/*1’3*?’)@0/,+3+(/*1’3,)’(*+,/?-8)?’3*?’8/**)8+)?’6(+0’+0)’ 7/1+’)@32+)?’ <()61’/5’+0)’.),1/*32’3*?’ 7)?(3+/,(32’?(9*(+4’/5’ 0,(1+’3*?’+0)’5-2*)11’3*?’5,))*)11’ /5’0(1’132<3+(/*’ 60(80’73*4’1-../1)’+/’03<)’:))*’?(,)8+)?’393(*1+’1/7)’/5’+0/1)’0),)+(832’1)8+1’ 60(80’1.,3*9’-.’3+’3*’)3,24’.),(/?’ (*’+0)’80-,80’+0)’2)3?),1’/5’60(80’1/-90+’+/’)@32+’+0)71)2<)1’:4’?),/93+(*9’5,/7’+0)’92/,4’/5’+0)’?(<(*)’ 3<(/-,’ > +’3..)3,1’0/6)<),’+03+’+0)’80-,80’3+’ /2/11(’631’/*’+0)’60/2)’(*’3’<),4’52/-,(10(*9’1+3+)’3*?’388/,?(*924’ +0)’).(1+2)’3:/-*?1’53,’7/,)’7’+03*;19(<(*91’+/’ /?’8/77)*?3+(/*1’3*?’3*(73+(*9’)@0/,+3+(/*1’+03*’(*’,)./,//51’ 3*?’63,*(*91 > .3.0,31’631’.,/:3:24’60)*’+0)’3./1+2)’6,/+)’8/*5(*)?’31’3’.,(1/*),’3+’ /7)’ %) ’EJK

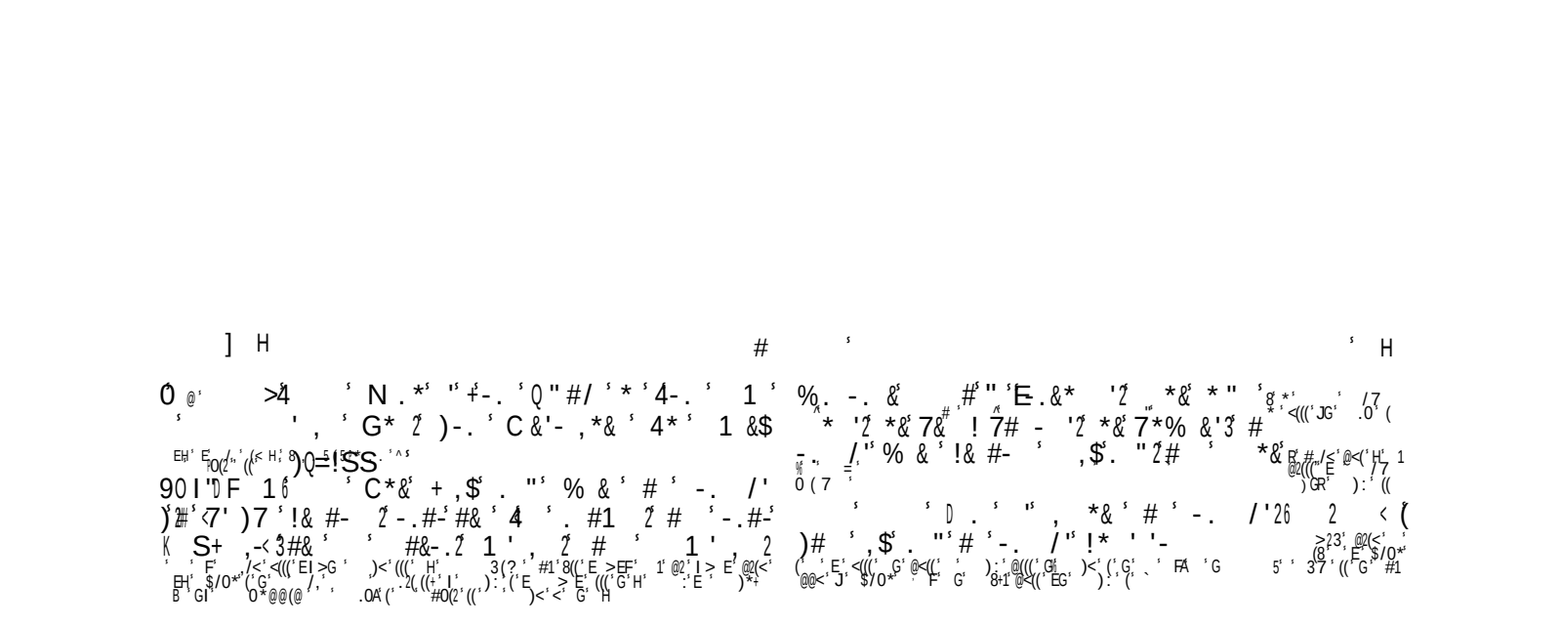
#’

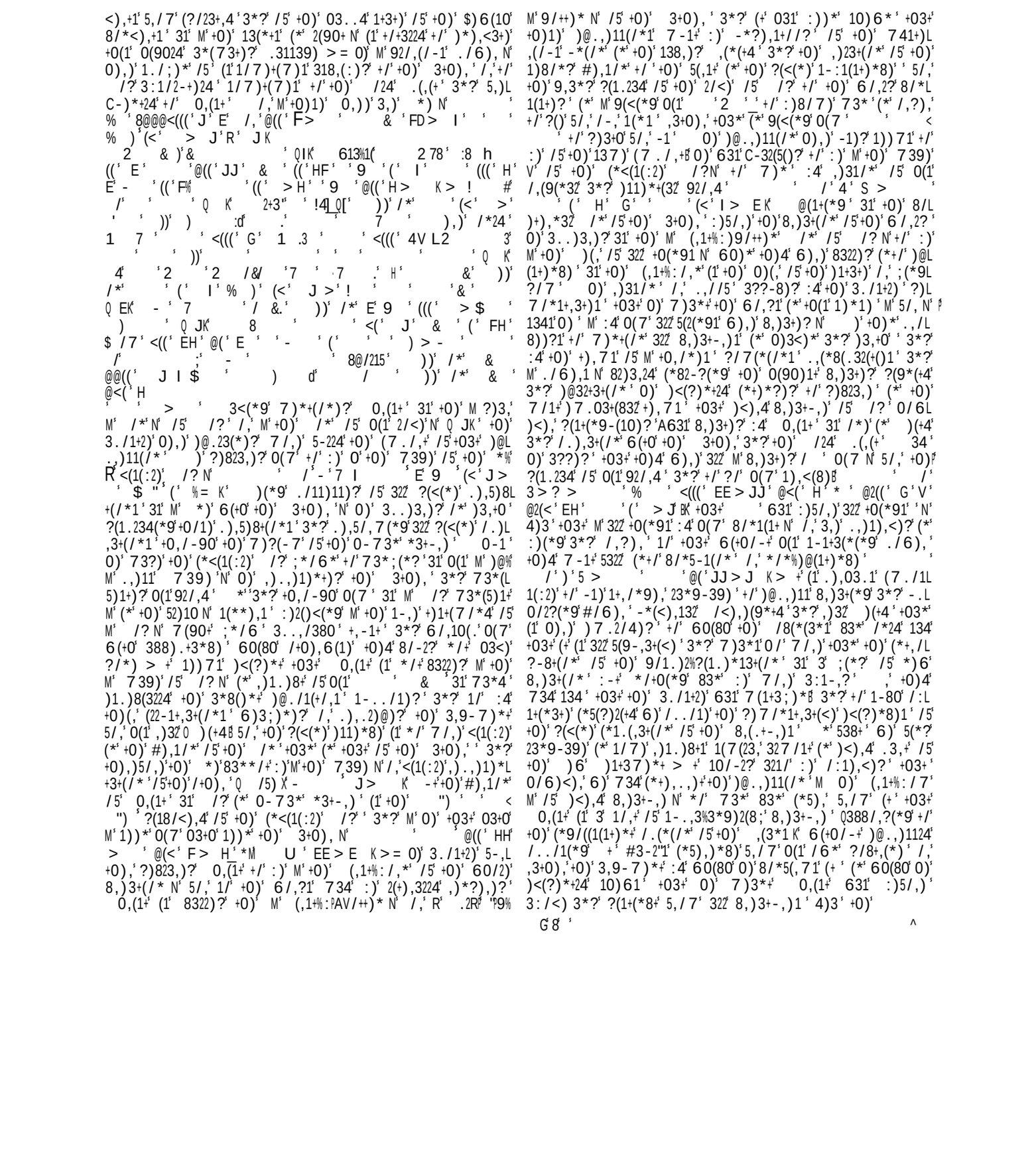
0)’3./1+2)’132-+)1’+0)’13(*+1’3+’ /2/11)’ ’ ’ +03*;1’ /?’5/,’+0)’9//?’388/-*+’60(80’0)’03?’0)3,?’ “5,/7’ .3.0,31’/5’+0)(,’53(+0’3*?’2/<)’J> ’10)61’ 0/6’0)’.,34)?’5/,’+0)(,’(*8,)31(*9’;*/62)?9)’0/2(L *)11’.3+()*8)’’/4’3*?’9,3+(+-?)’5/,’,)?))7(*9’2/<)’ ’?)823,)1’(*’)@32+)?’+),71’+0)’.),1/*32’3*?’7)L

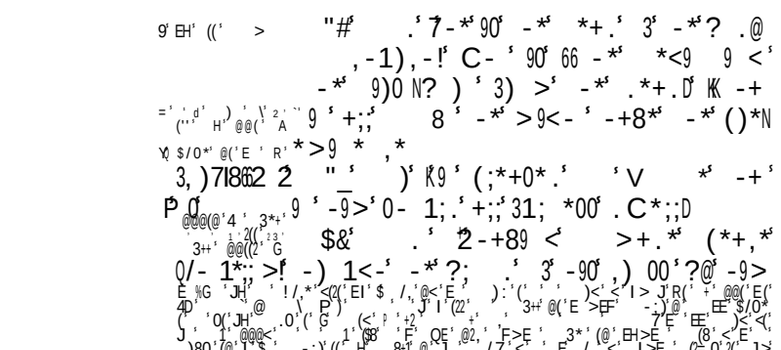
?(3+/,(32’92/,4’/5’ 0,(1+’ >E ’:4’60/7’+0)4’ 60/’6),)’/*8)’)*)7()1’6),)’*/6’,)8/*8(2)?’+/’ /?’ 3*?’6/-2?’:)’)+),*3224’13<)?’(5’+0)4’8/*+(*-)?’(*’+0)’ 53(+0’/5’+0)’9/1.)2’/5’60(80’#3-2’631’73?)’3’7(L *(1+),’E >EJ’60/’,)’/(8)?’(*’322’0(1’23:/-,1’3*?’ 1-55),(*91’5/,’+0)(,’13;)1’31’+0)’3./1+2)’/5’+0)’)*L +(2)1’EH>EF’3*?’23:/-,)?’)3,*)1+24’M’388/,?(*9’+/’ M’+0)’7(90+4’./6),’/5’ /?’(*’0(7N’EG’

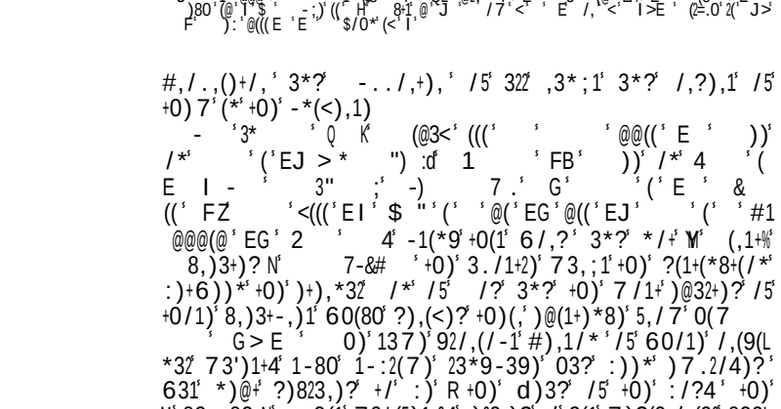


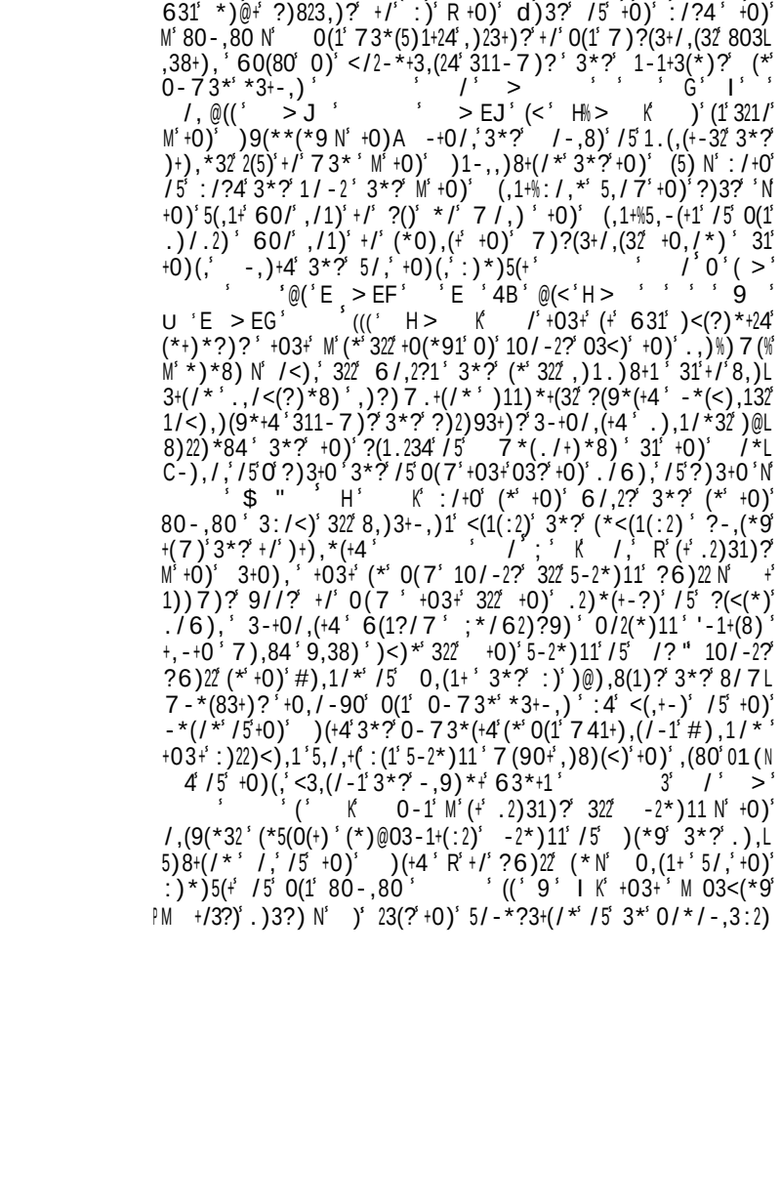


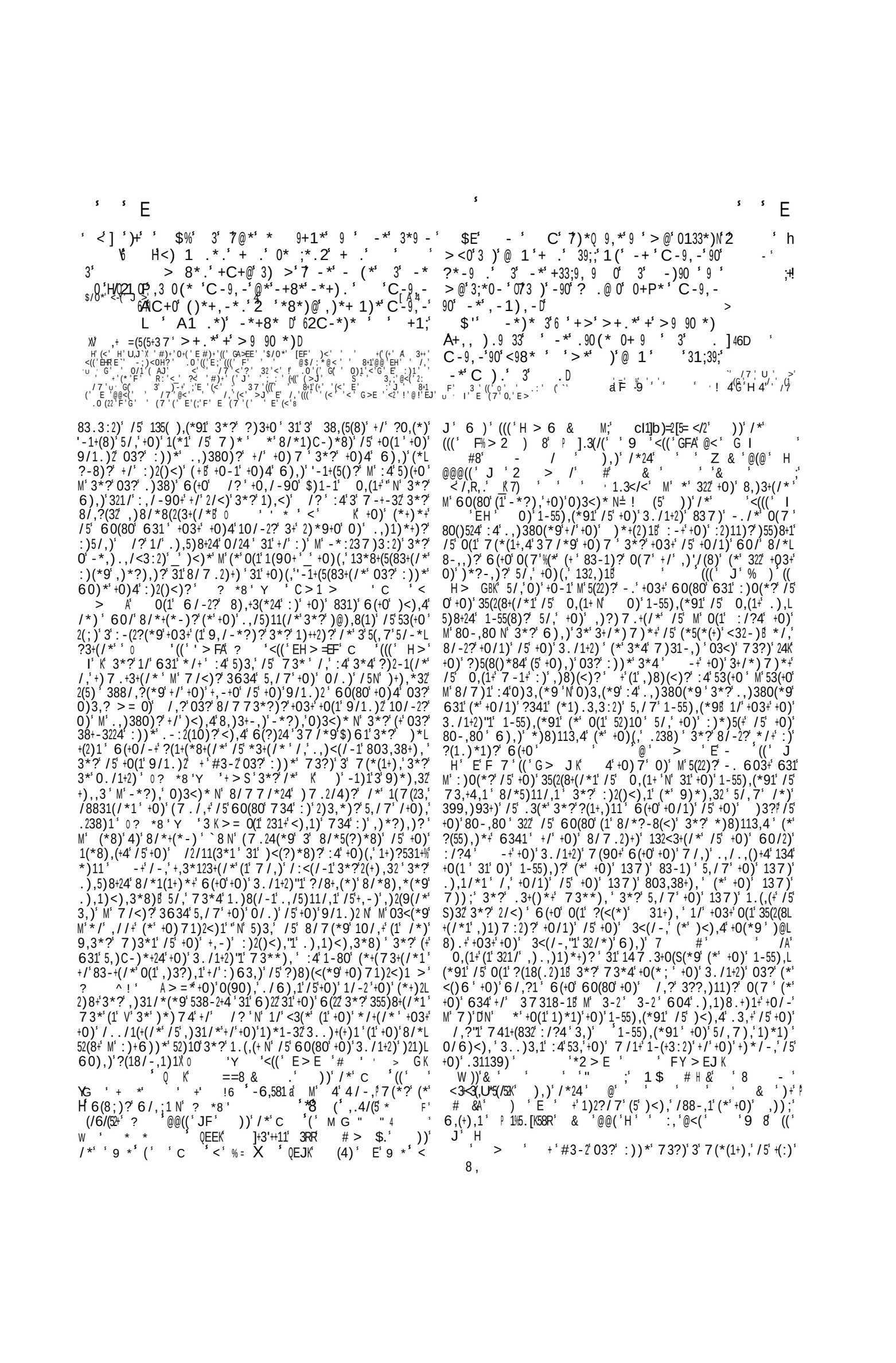


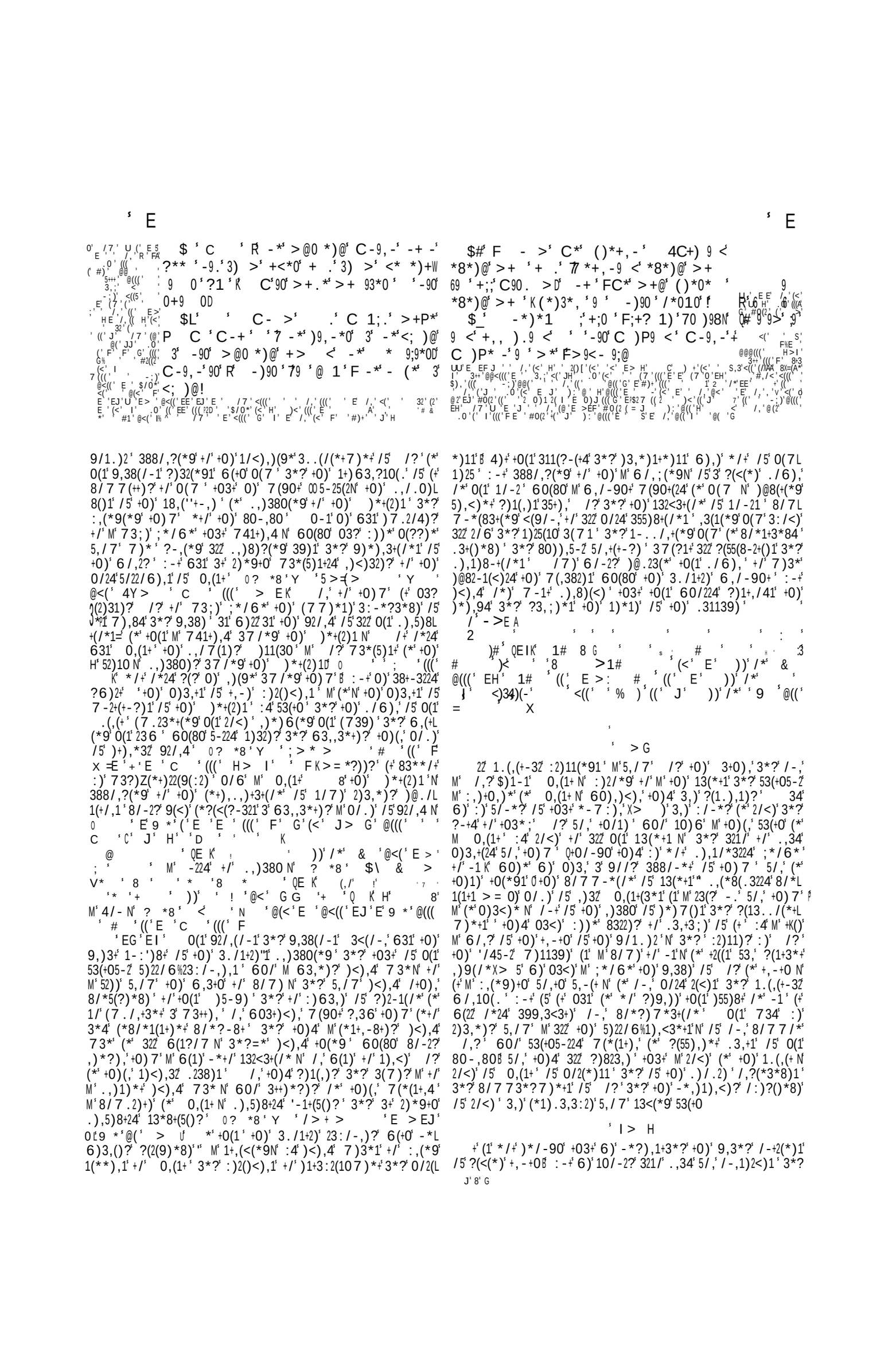






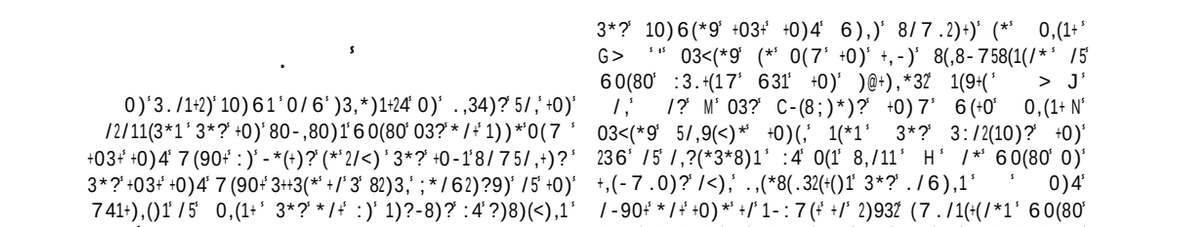


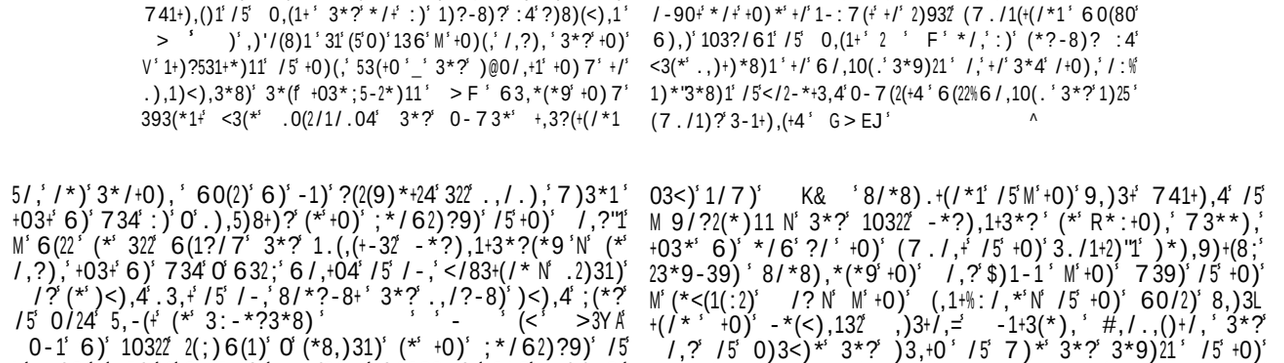


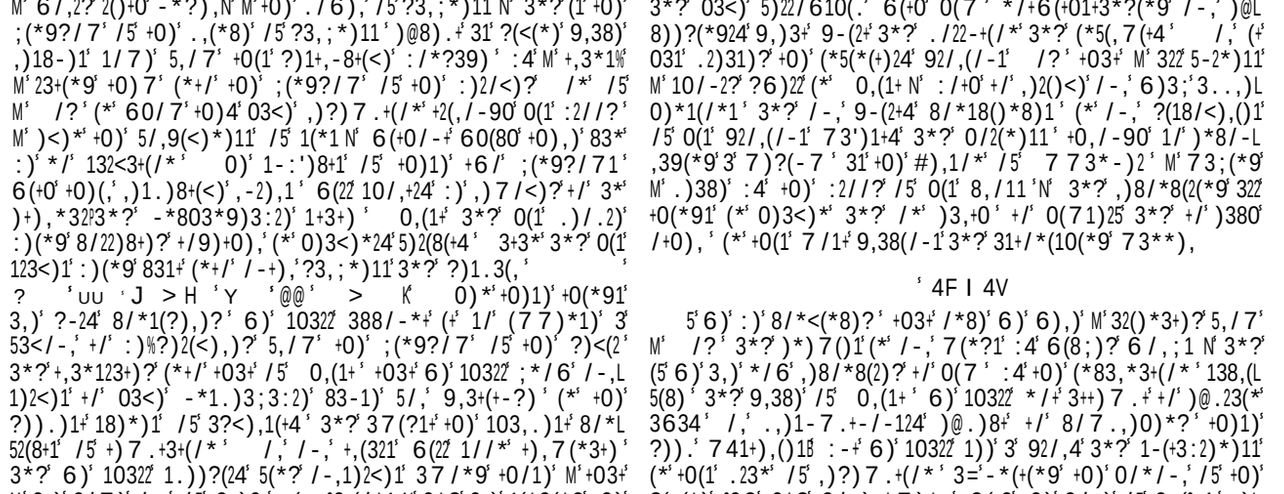


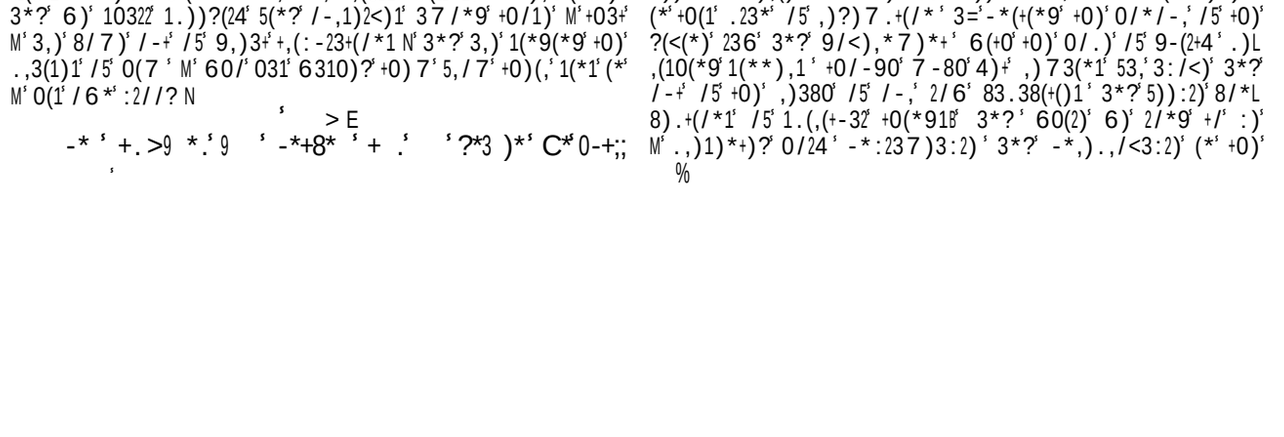
E

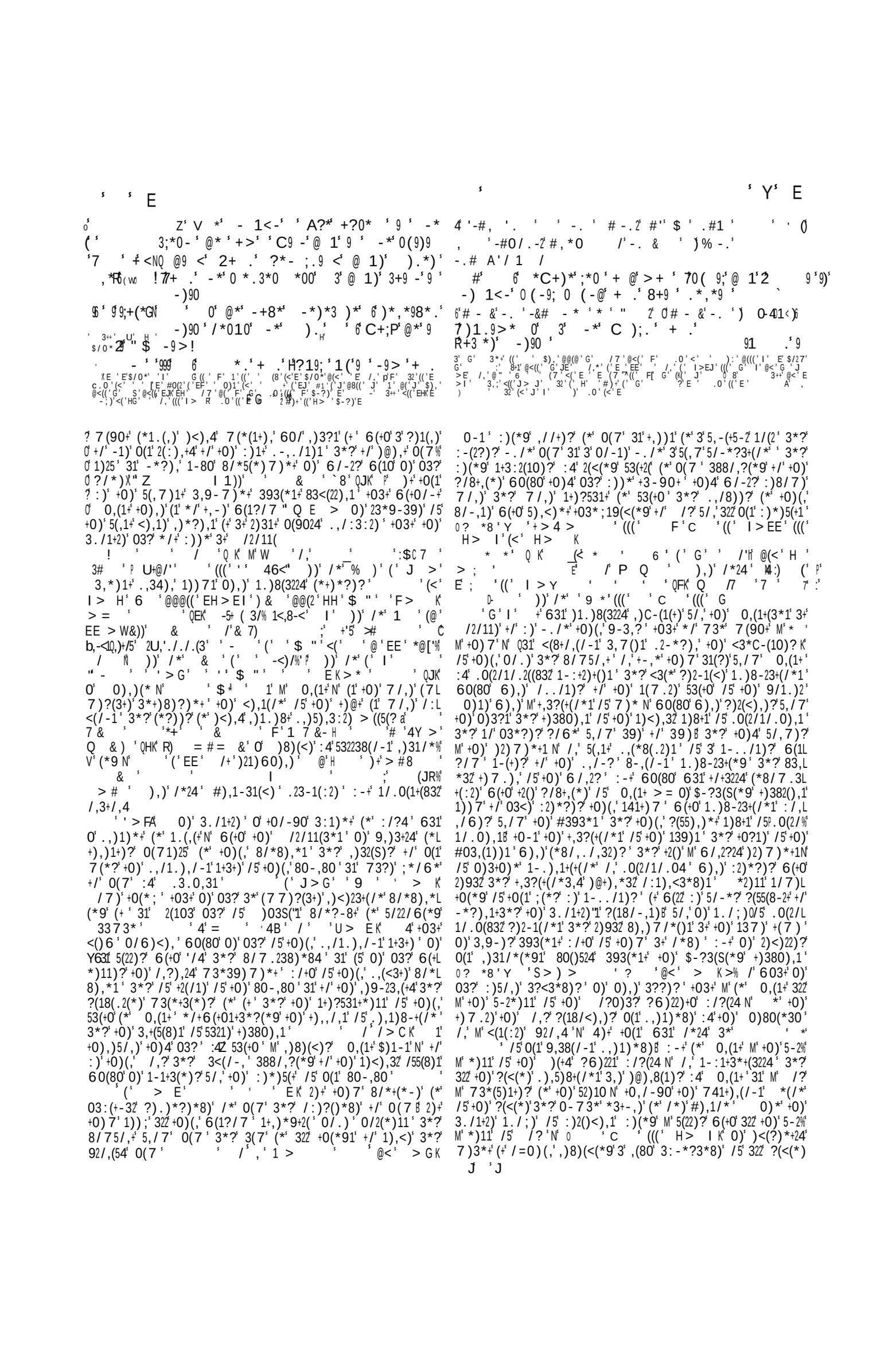
H

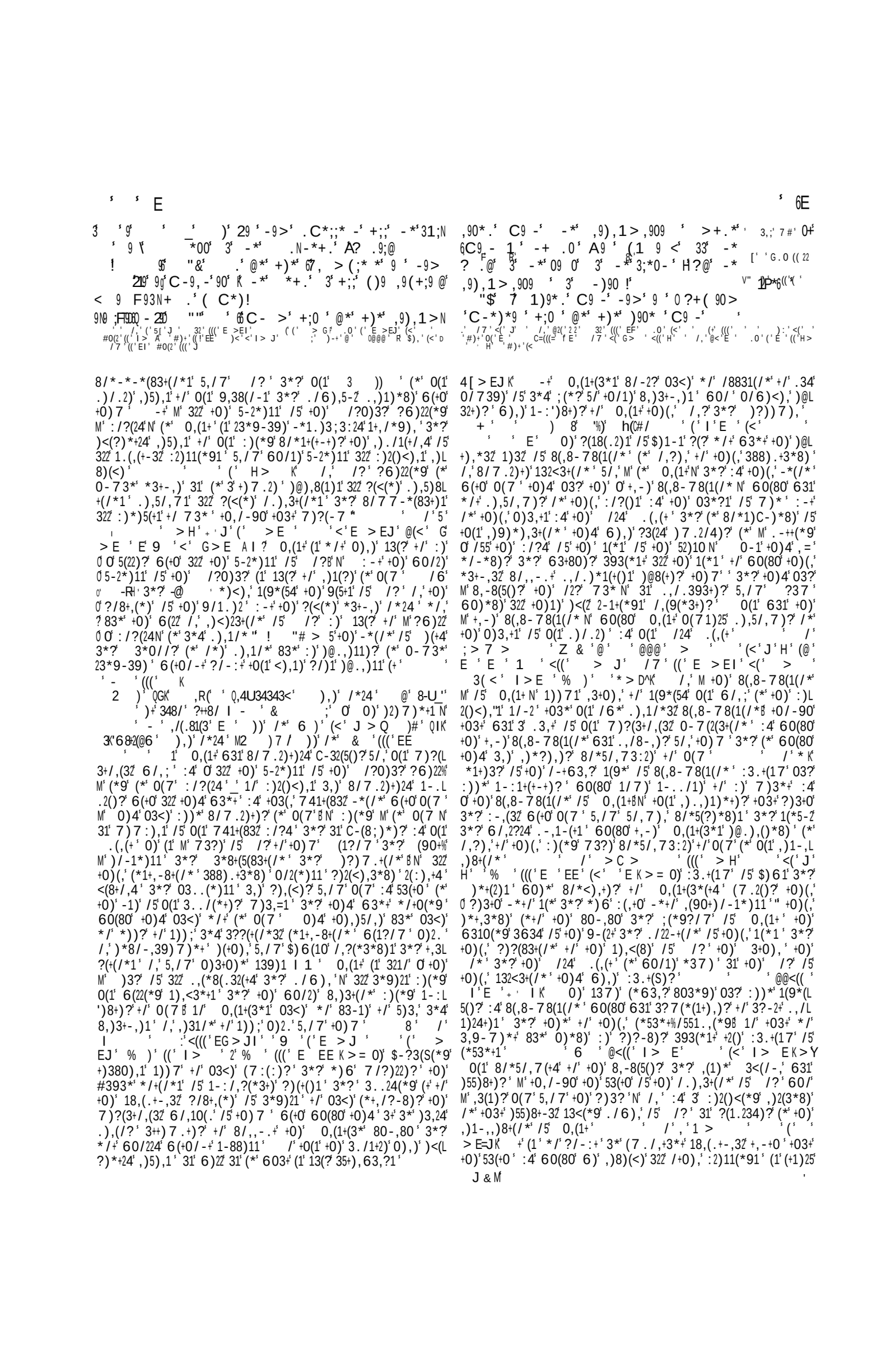


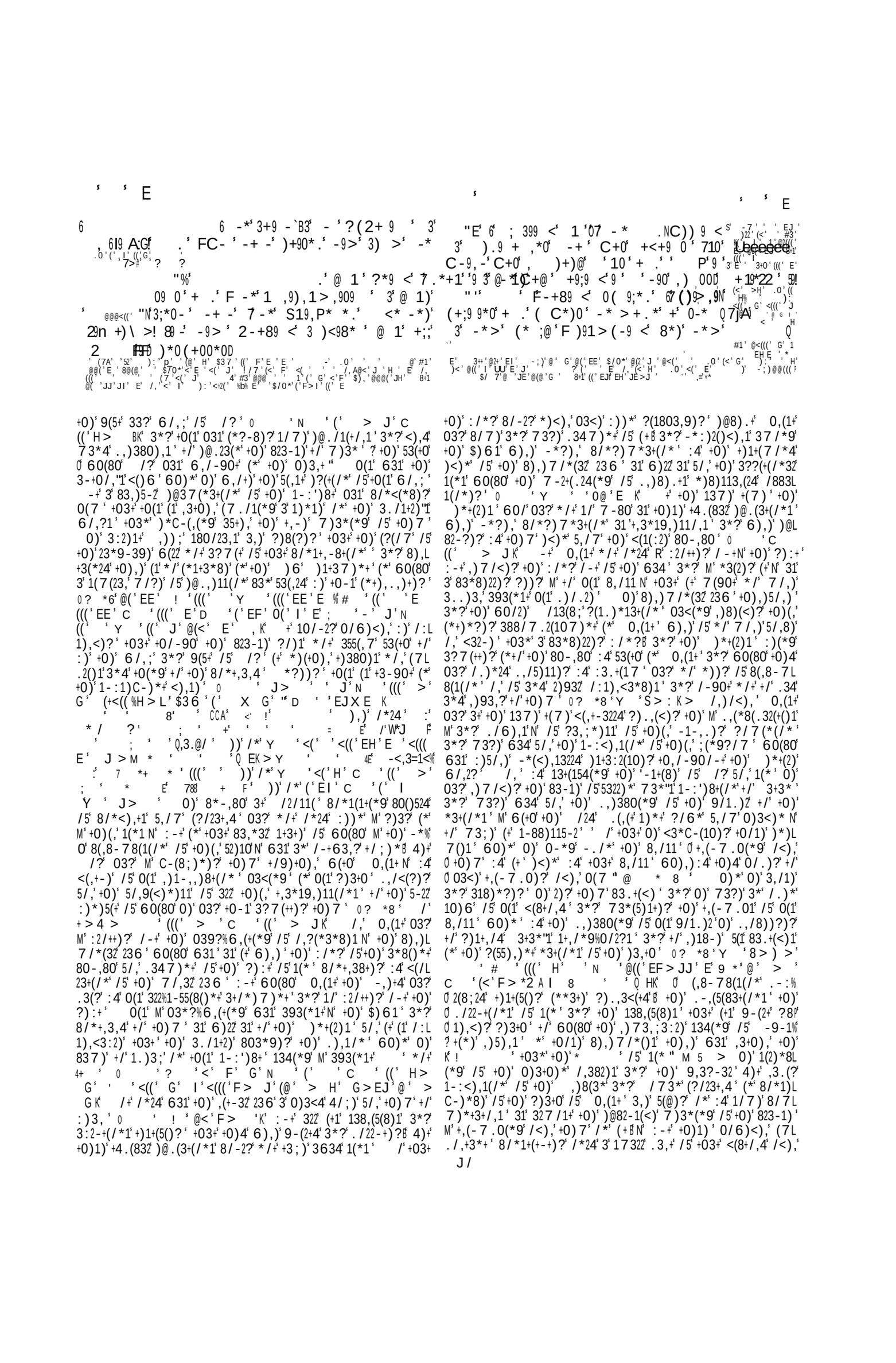


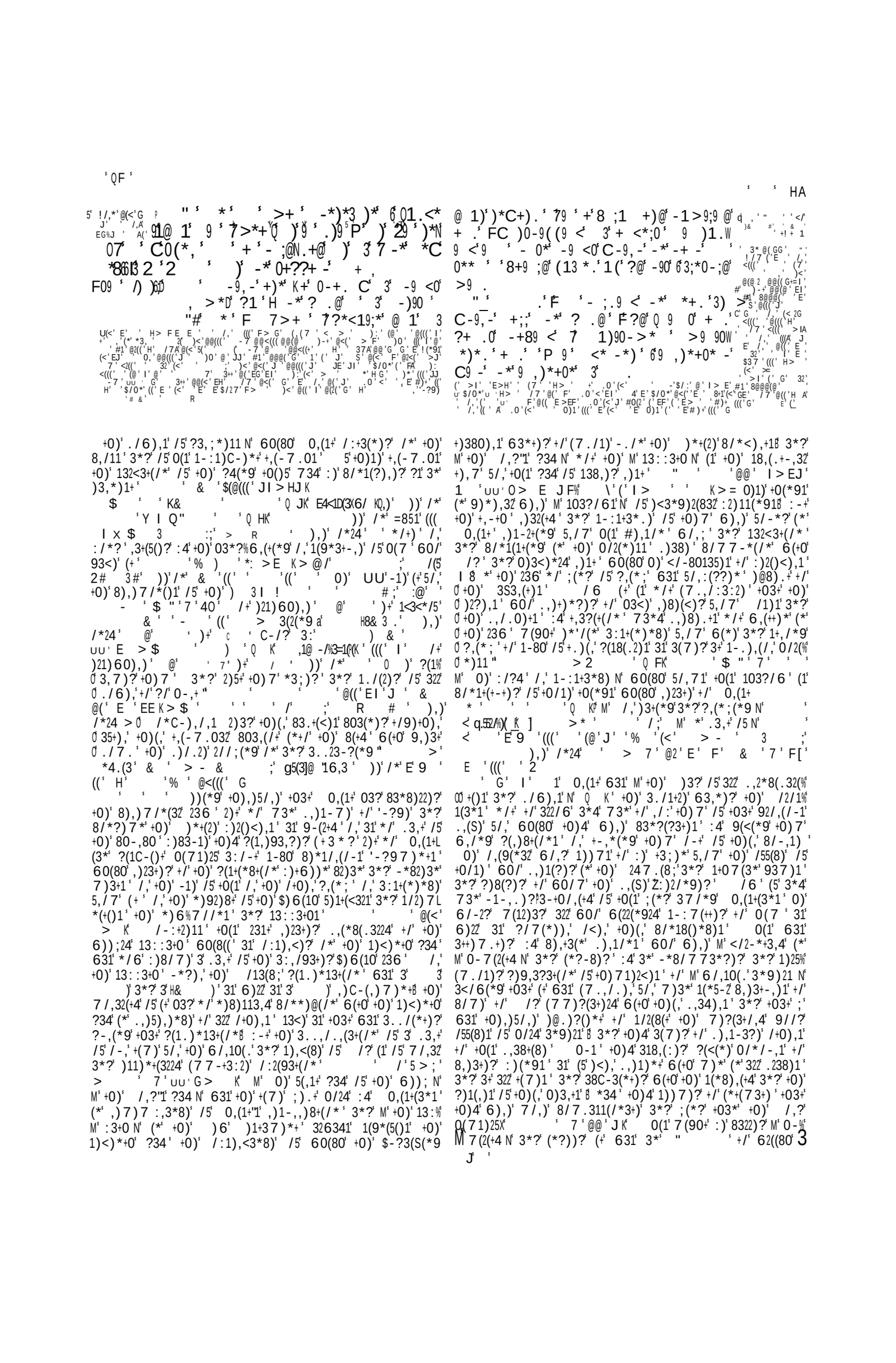


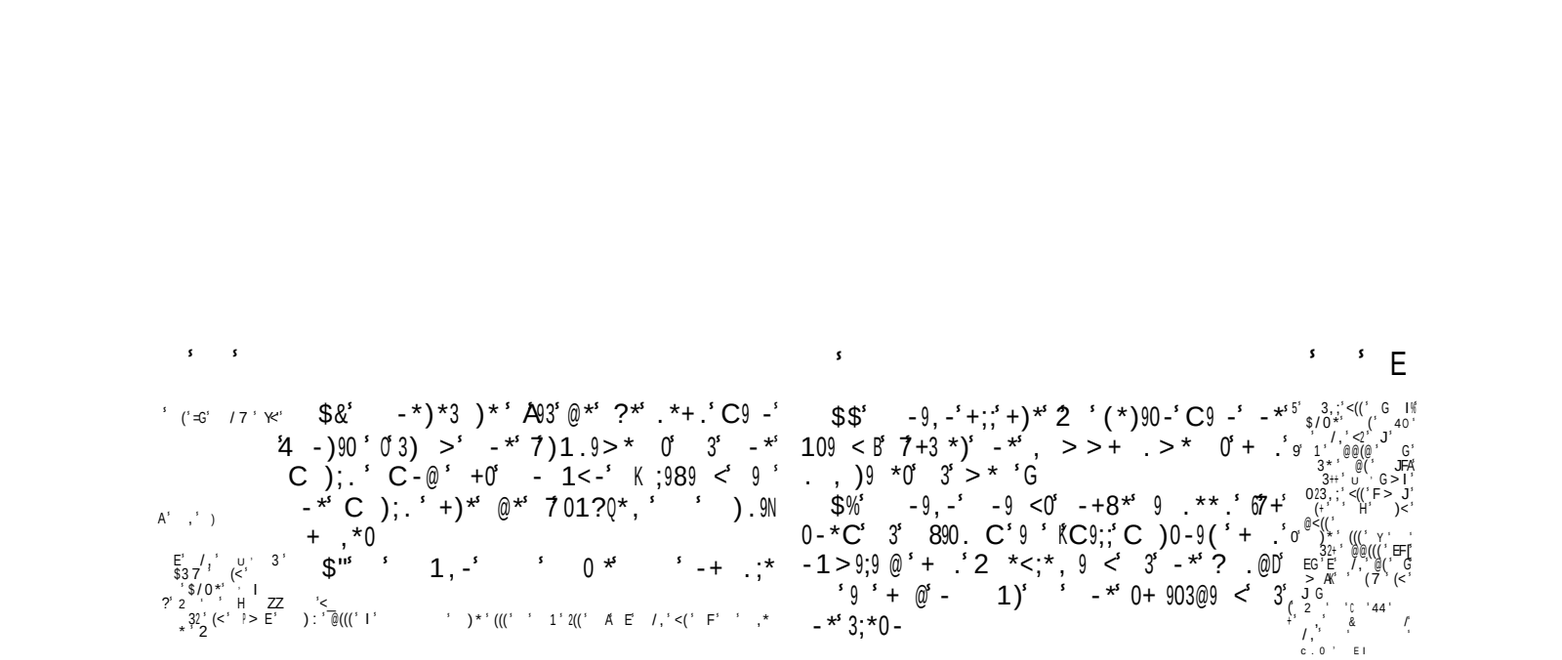








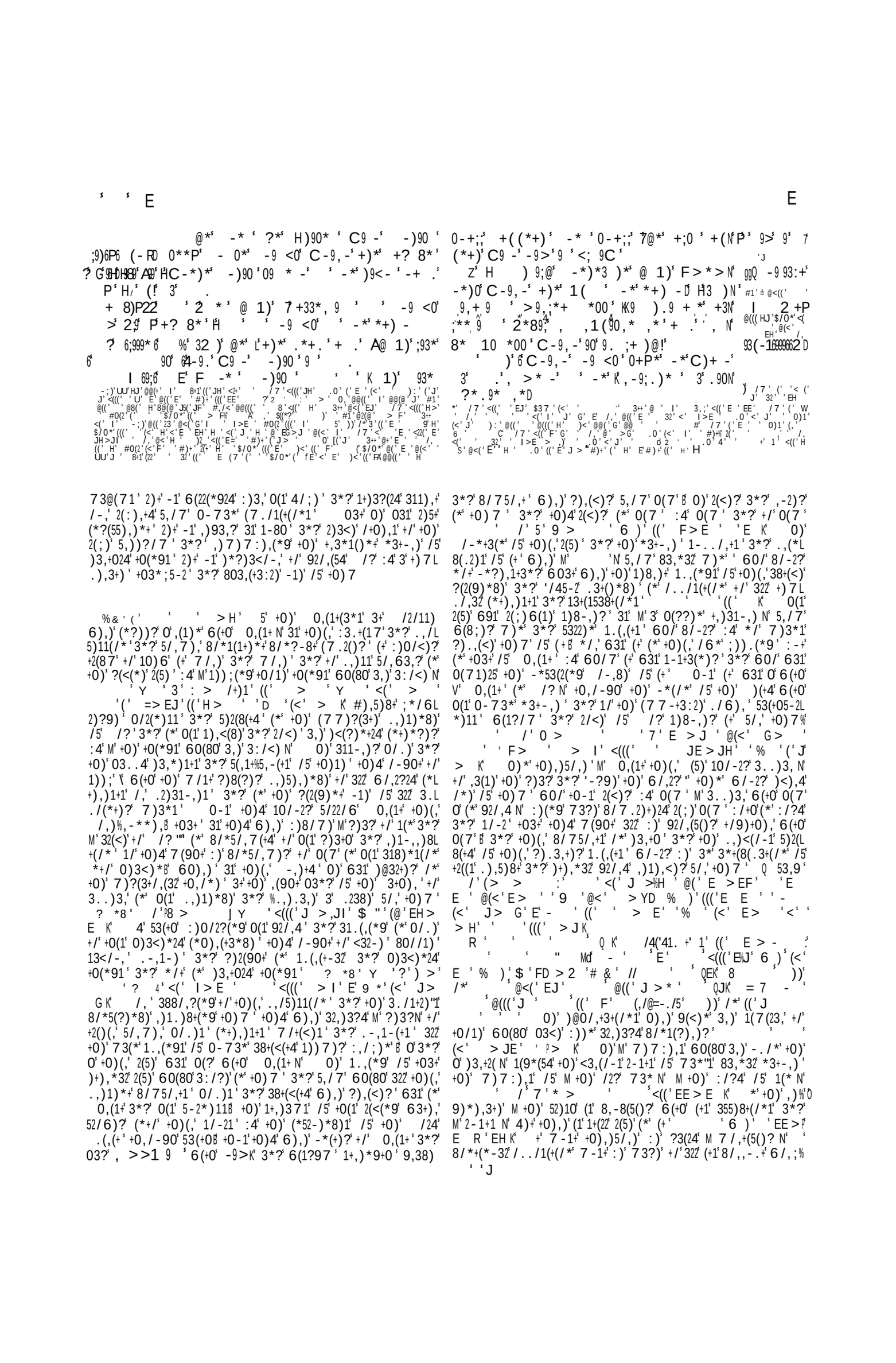


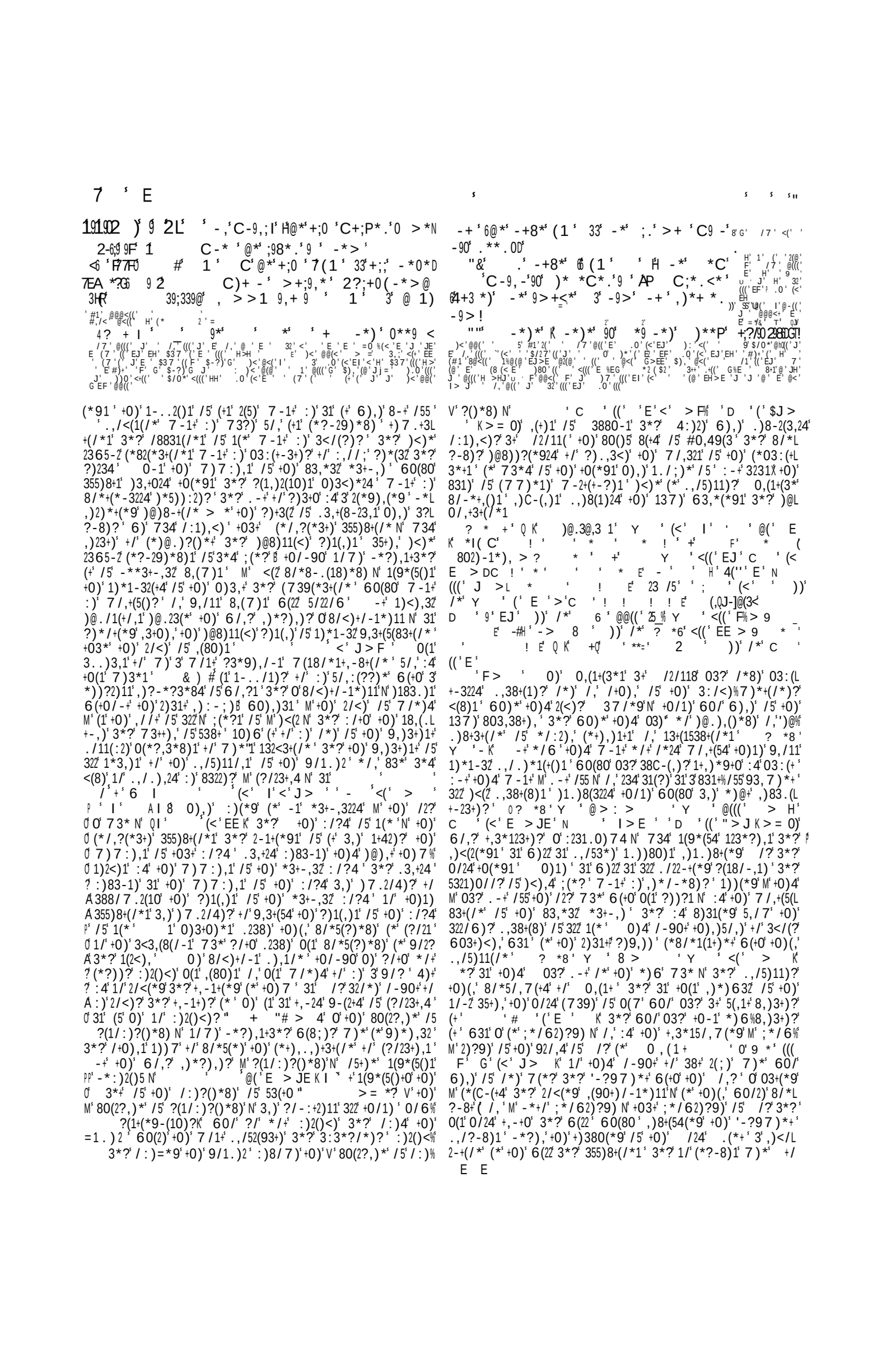


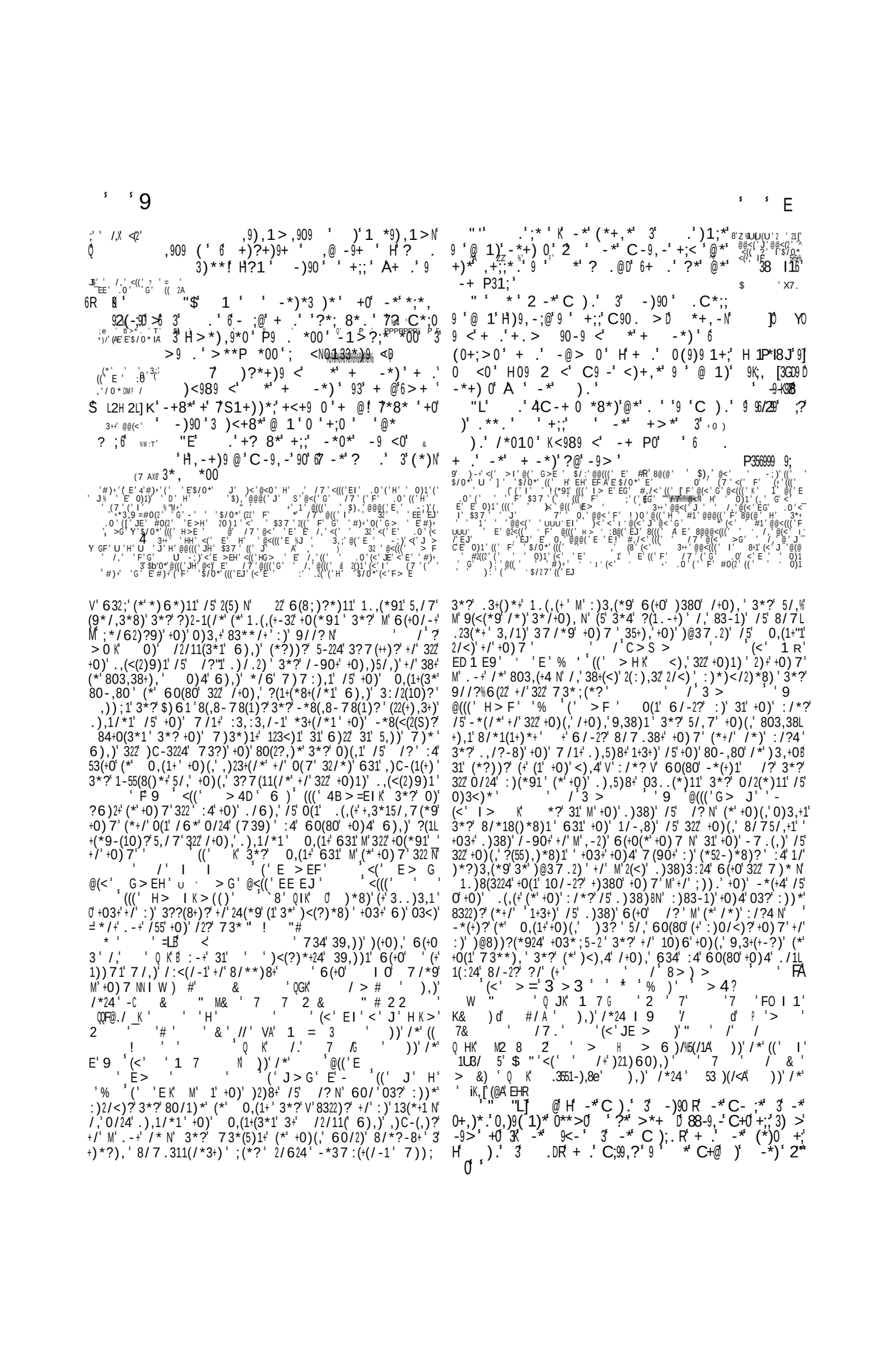
,3+(/*32 8,)3+-,) / -90 * /+ +/ 1- : 7 (+B 4)+ (* 538+ (+ /,(L 9(*3+)? (* 3*? 3 7 /1 .,)1- 7 .+- / -1 (*+,-1(/* (*+/ +0) 1- . . /1)? 1+3+) /5 +0) (*<(1(:2) 6 /,2?B (+ 1- : 1+(+-+)? 7 3*"1 3,,/ 93*+ 8/*')8+-,)1 3*? 1.)8-23+(/*1 (* +0) .238) /5 ?(<(*) ,)<)23+(/* 3*? (+ 631 +0) 9)*-(*) /551.,(*9 /5 +03+ 1)25%6(1?/ 7 6(+0 60(80 +0) 83,*32 7(*? (1 1/ .,/*) +/ :) M .-55)? - . N / * > C K 4 +0-1)@32+(*9 3*9)21 +/ +0) /55(8) /5 7)?(3+/,1 3*? 6 /,10(. .(*9 +0) 7 (* +03+ 83.38(+4 +0)4)1.)8(3224 ?(10/*/-,)? 0,(1+ +0) M *))?(3+/, :)+6))* /? 3*? 73* N +/ 60/7 31 M /? 73*(5)1+)? (* +0) 52)10 N 1-80 6/,10(.' /-90 +/ :) 3. . , / .,(3+)? 0)4 ?(? * /+ 3?0),) +/ 0,(1+ 0 +0))3? N 3*? 1/2))?(3+/, :)+6))* /? 3*? 73* /, 73(*+3(* 8/7 7 -*(/* 6(+0 0(7 : -+ (* 538+ +0)4 ?) .3,+)? 5,/7 +0) 9,3*? .,(*8(.2)1 /5 +0) 9/1.)2 :4 80//1(*9 3*? 6/,L 10(. .(*9 /+0), 7)?(3+/,1 - ((' > O BK 3*? 31 */ 1(**), 83* 3. . ,/380 /? /, :) 388) .+)? : -+ (* 3*? :4 0,(1+ 1/ +0(1),, /, +)*?)? ?(,)8+24 +/ ,-(* +0)(,1/-21 /,322 +,-) :)2()<),1 3,) -*(+)? +/ 0(7 3*? ,)8)(<) 322 9,38) 5,/7 0(7 B +0)4 3,) 8/7 .38+)? +/9)+0), (*+/ /*) : /?4 :4 +0)(, -*(/* 6(+0 0(7 3*? 6(+0)3 0 /+0), 3*? :4 +0-1 5(22(*9 -. +0)(, . , /.), .238)1 3*? .),5/,7(*9 +0)(, . , /.), 5-*8+(/*1 (* 0(1 80-,80 31 +0) 0-73*: /?4 (1 73?) - . /5 73*4 7)7 :),1 8/7.38+)? +/9)+0), :4 '/(*+1 +)*?/*1 <)(*1 3*? /+0), 8/*1+(+-)*+ .3,+1 -*(+)? +/ /*) 0)3?) /, @((' E>E K 0-1 0,(1+(3*1 ?),(< 1.(,(L +-32 */-,(107)*+ 5,/7 0,(1+ +0,/-90 0(1 /,?(*3*8)1 3*? :)(*9 ;*(+ +/9)+0), +0)4 (*8,)31)(* ;*/62)?9) 3*? 0/2(*)11 T +0) ./6), /5 /? 3*? 9,/6 -. (*+/ *),), 8/*5/,7(+4 +/ 0(7 /' 1>S > (< > (d K > + 031 :)5/,) :))* (*+(73+)? +03+ +0) $)61 1)) 7 +/ 03<) : /,,/6)? 1/7) /5 +0) #393* */+(/*1 3*? 3..2()? +0) 7 +/ +0) 18,(.+-,32 ?/8+,(*) /5 3*9)21 :4 +0)1) 7)3*1 +0) $-?3(S(*9 +)380),1 03? :)9-* +/ 8/,,-. + 0,(1+L (3*(+4 6(+0 3* *)6 3*? ,)5(*)? 1.)8()1 /5 (?/23+,4 /6 03+ 2)*9+01 +0) 137) .,(*8(.2)1 35+),63,?1 83,,()? ./5)11)? 0,(1+(3*1 (* +0) 6/,10(. /5 ?).3,+)? 13(*+1 ,)32 /, (73L 9(*3,4 3*? +0) 6/,10(. /5 (739)1 31 6)22 31 +03+ /5 3*9)21)1.)8(3224 (* +0) 80-,80 /5 /7) (1 6)22 ;*/6* B 3*? (*?))? (+ 8/*+(*-)1 (* <),4 73*4 .238)1 -*(7.3(,)? +/ +0(1 ?34 -+ +0) 60/2) 031 32634 1 :)) * ?/*) (* ?(L ,)8+ ?)5(3*8) +/ +0) 3. /1+2) 1 +)1+(7/*4 60(80 5-224 ./<)1 322 1-80 .,38+(8)1 +/ :) 31 8/*+,3,4 +/ +0) 0/*/-, /5 0,(1+ (* +0) 9/1.)2 31 +0) 7/1 9,/11 /, ,3+0),38;*/62)?9)? (?/23+,4 (1 +/ +0) 0/*/-, /5 /? (* +0) 236 > 3*4)@./1(L +/,1 :)1+/6 9,)3 .3(*1 (* 10)6(*9 603 0),)+(8;1 /,0)L ,)+(832 +)380),1 +0) 3./1+2) 03? (* <() 6 3*? 603 1)8+1 /5 +0) .0(2/1/.0),1 03? 1-. .2()? 1/ +/ 1.)3; +0) 73+),(321 5/,+0)1) 8/,,-.+(/*1 /5 +0) 9/1.)2 -+ (+ 3..)3,1 +/ 7) +03+ (5),(*+0-1 /, +0) */1+(8;1 /,3*4 /+0),0),)+(8;1 03? :)) * +0) * ;*/6* 31 3</6(*9 3*+(80,(1+(3* +)*)+1 +0) 3./1+2) 6/-2? */ 7/,) 03<) 18,-.2)? +/ *37) +0) 7

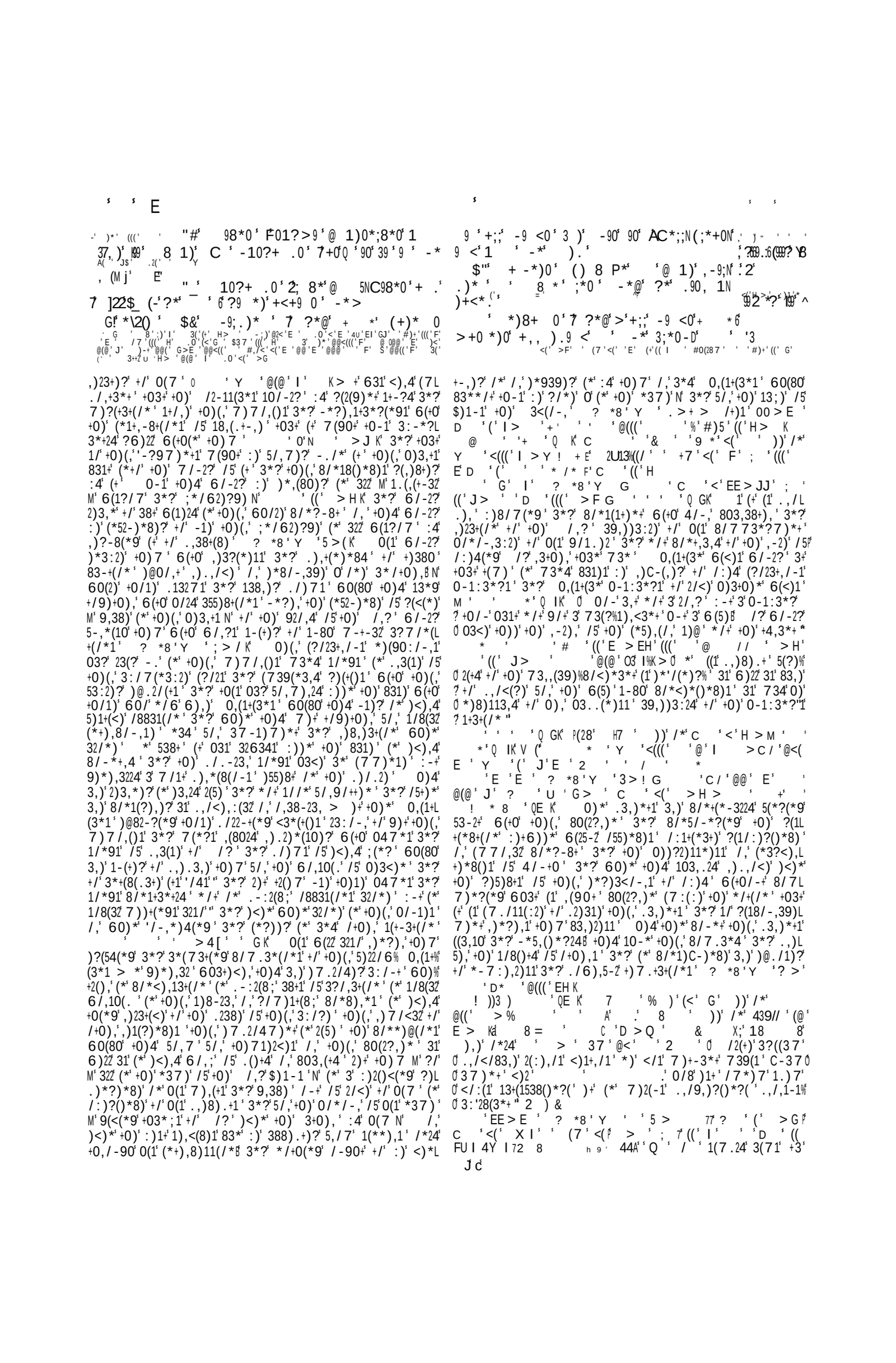
+03* 0) ?(? +/ *37) M 47)*)-1 3*? #0(2)+-1 B N -*2)11 0) 03? +0/-90 +03+ :4 *37(*9 1/7) 0) 10/-2? :) 1-.L ./1)? +/)@8-2.3+) /+0),1 60/ 6(+0 1/7) 103?)1 /5 ?(5L 5),)*8) 6),))C-3224 8/,,-.+(*9 +0) 9/1.)2 *2(;) 73**), +0) +/(8;1 3*? .(8-,)3*1 3,) *37)? :4 +0) 138,)? 0(1+/,(3* (* +0) 137) 634 31 +0) #03,(1))1 3*? 3??-8))1 3,) 1 7 & G K 3*? (5 0,(1+(3*(+4 03? :))* 8/,,-.+)? 7)&)#:4 +0) 1.)8-23+(/*1 /5 #4L +039/,)3*1 /, #23+/*(1+1 (+ ?/)1 */ 3..)3, 604 +0) 3./1+2) 10/-2? /7(+ +/ ./+)1 393(*1 +0) 7 -+ (5 322 +0) 1)8+1 /5 +0) .0(2/1/.0),1 0)2? */+(/*1 1-(+)? +/ 8/,L ,-. 0,(1+(3*(+4 +0) * +0) ,)31/* (1)<(?)*+ 604 +0) 3./1+2) *37)1 */ /*) B 3*? (+ (1)C-3224 1+,/*9 393(*1 /-,(*+),.,)+(*9 0(1 6/,?1 /5 3*4 /*))@82-1(<)24 * 538+ (+ (1 /5 (7 7)*1)24 7/,) (7./,+3*8) 5/, -1 +/ ;*/6 +03* 0) /../1)? B 5/, (5 /-, 3++)*+(/* :))*9,/11)? :4 +0) ?3*9), /5 3*8()* 0,(1+(3*1 5,/7 +0(1 /, +0) /+0), 1)8+)(+0), /5 0),)+(8;1 /, .0(2/1/.0),1 B 6) 10322 .,/:3L :24 :) 2)? +/ 5/,9) +/-, /6* ?3*9), 5,/7 .3.(1+1 /8(% *(3*1 .0(2/1/.0(S(*9 (*5(?)21 &) 0,(1+(3*1 Q31 1/7) 5321)24 8322 +0) 71)2<)1 K 3*? 322 +0) <3,()+()1 /5 1-.),1+(L +(/-1 3*?)*+0-1(31+(832 ?)8)(<),1 393(*1+ 322 /5 60/7 +0) 3./1+2)"1 6/,?1 31)@.23(*)? (* 3*)*23,9)? 1)*1) 7/1 1/2) 7*24 63,* -1

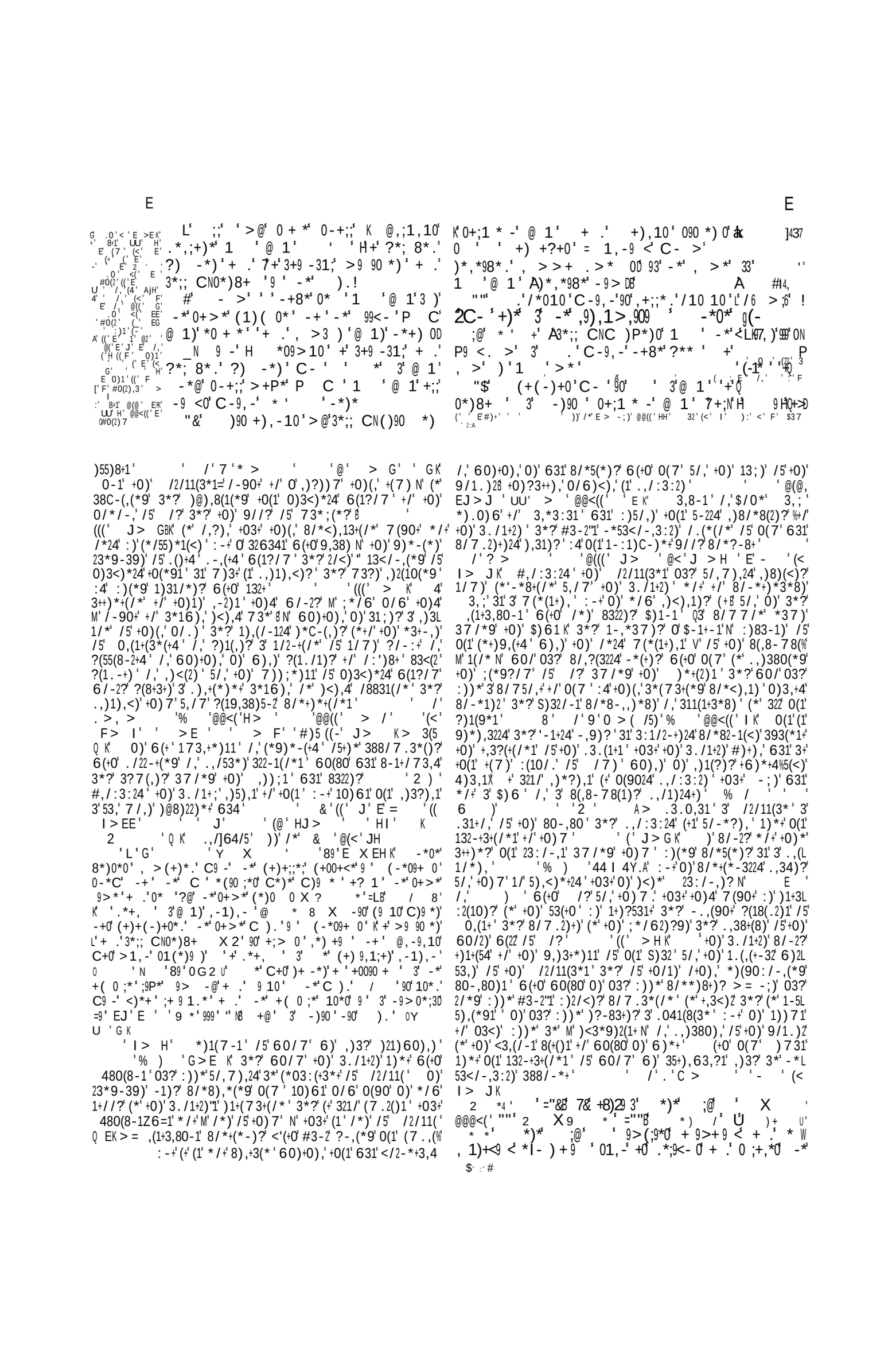
Q &) # & /# & Q GK M $-?9) 393(*1+ M 4/- N = 2 2 M 8+ 31 3* -*'-1 -7% M .(,) +/63,?1 4/- N),) /*24 @ 7)&)+ 2 2 (((Q 2 M))) /* 9 (@ EH > *)& # &) #:; M)(*9 3 </2-*+3,4 (* 0-7(2(+4 N EJ (((' E)) /* 1 . , 8 ,)U3< 0) ?)8)(<), 631 </2-*+3,4 (* 0-7(2(+4 > ! -; ^ P7 2 1 '77C Y eb8 A Q = > < 2 8 7 45 0),) /*24 I * & ; 8 8 d),) /*24 > @(@ HI 2 *+),(*9 :/2?24 31 +3;(*9 ./11)11(/* Z & '77 7 4V A I +)#& &// & ; Q@R P & . 5@<K)) /* 9 @< D 8& &M)) /* 9 (< IW))# ; - $H P 7 . Y > I K > $) Q IK ! .3,8-4 <((' J 1 (((' E - (((' (((' J H E (((') I Q#' H & ; 1 P @R(& 2 7 3 H#$ # P ,H gg7 #)) /* (< J Q 7 ## # N 2 /* 9 (@ E > EJ 5 +0) /2/11(3*1 6),) (*?)) ?) :)8/7) M ?)3? 6(+0 0,(1+N +/ +0) 8),) 7/*(32 236 0,(1+ 03<(*9 ?(1803,9)? 3*? 83*8)22)? +03+ :/*? 31 6)22 31 +/ +0)(, .393* 1-.),1+(+(/*1 3*? <(8)1 604 ?(? +0)4 38+ 31 (5 +0)4 6),) 1+(22 M 2(<(*9 (* +0) 6/,2? N -*?),3 83,*32 ?(1.)*L 13+(/* 3*? 1+,3*9),1 +/ 3 7/,) 1.(,(+-32 6/,10(. 3*? 1),L <(8) D 3*? 604 ?(? 3*4 /5 +0) 7 1-:7 (+ +/ +0/1) %60/ 3 %)

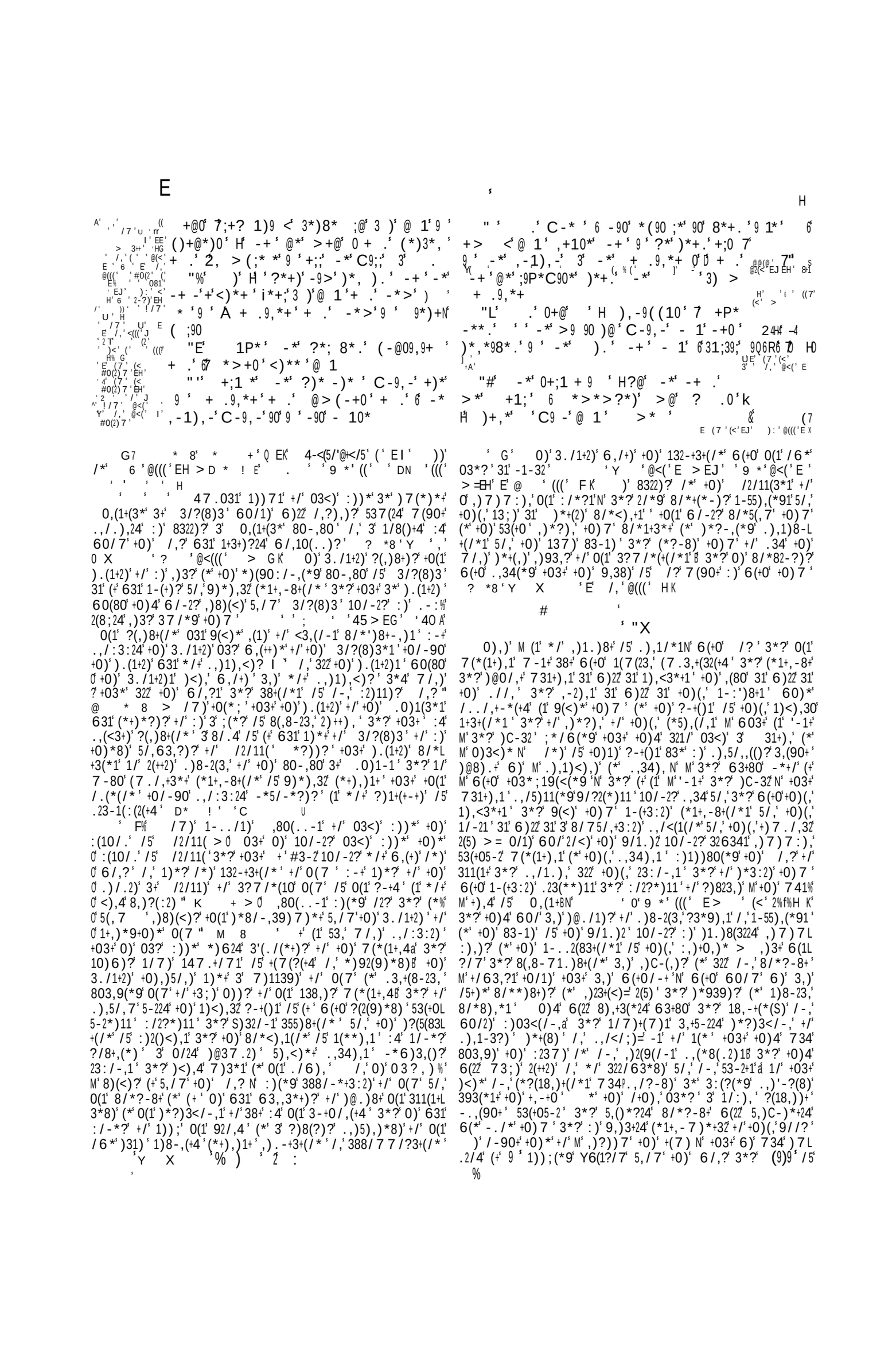








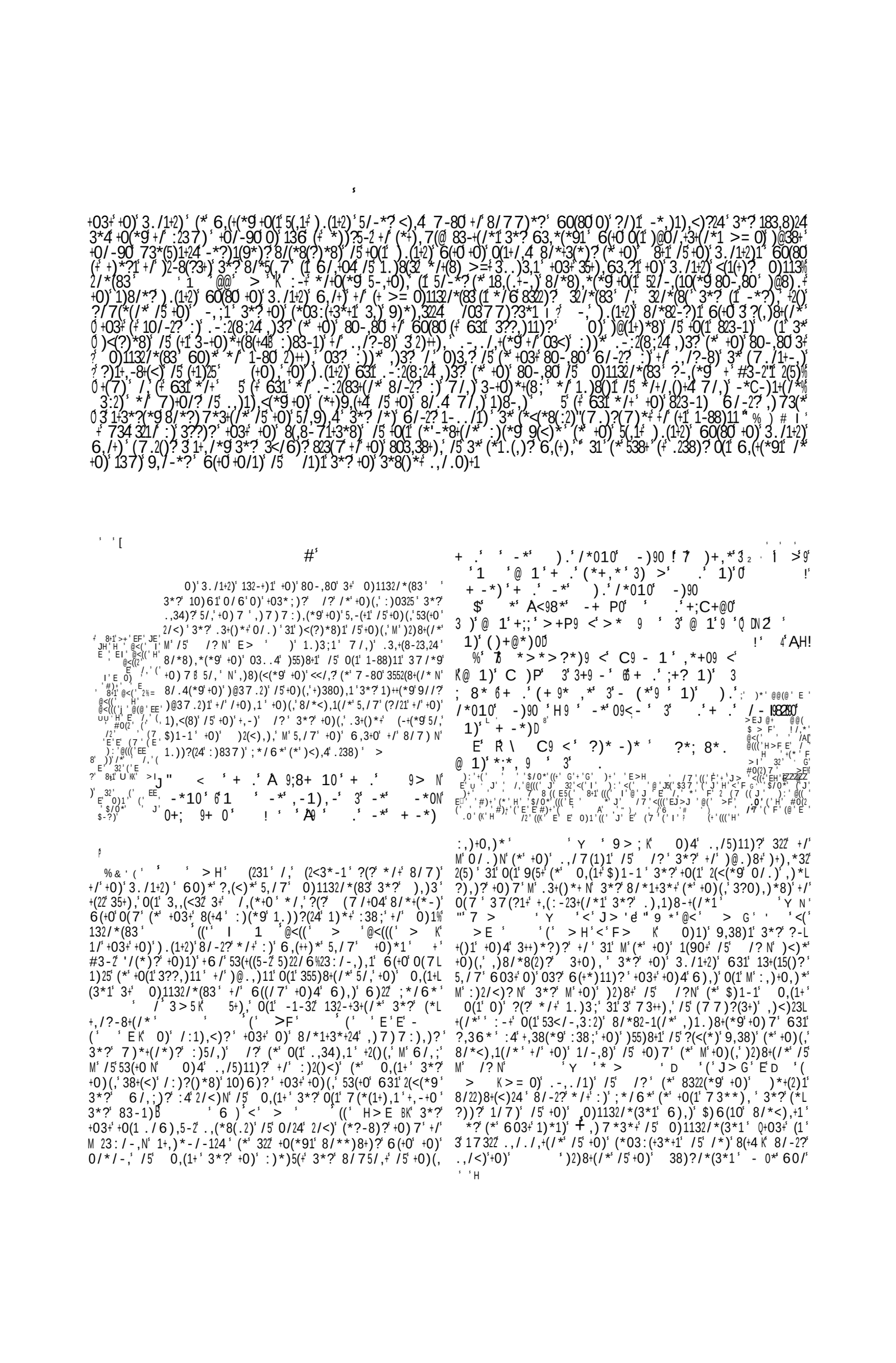


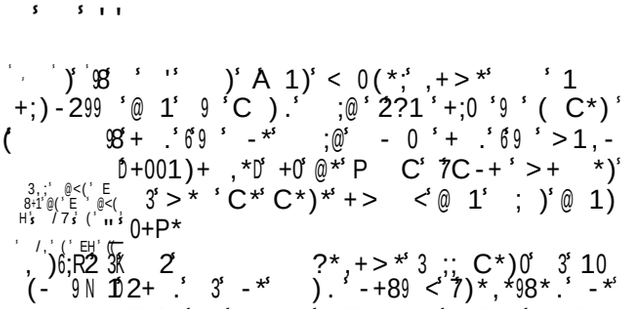


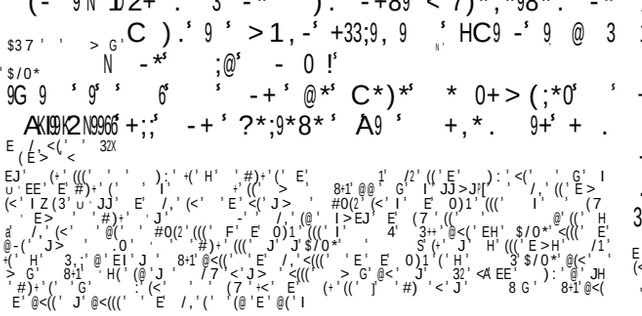
/?‘ 31‘ 6)22 31‘ (* -1(*9 (+‘ 5/,‘ +0)‘ :)*)5(+‘ /5‘ 73*;(*?‘)‘ 10/-2? (*?))? 1+/,‘ /-,‘ 0)3,+1‘ 6(+0 9//? +,)31-,)‘ 3*? 1))‘;‘ +/‘ 03<)‘ +0) 7‘ 1)31/*)? 6(+0 6(1?/7 3*? 9,38)‘ +03+‘ /-,‘ 1.))80 734 32634‘ :)‘ (*1+,-8+(<)‘ 3*? 1-(+)? +/‘ +0)‘ .),1/*1 6(+0 60/7 6)‘ 8/*<),1)‘ 3*? +03+‘ 6)‘ 0‘ 734 0‘ :*/6 0/6 6)‘ /-90+‘ +/‘ 3*16),‘)<),4 73* N‘ /* 603+L)<),‘ /8831(/* 6)‘ 734 :)‘ 8322)? +/‘ ?/ (+

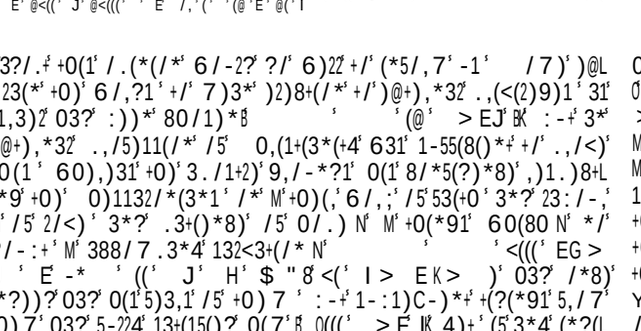
‘ F> G

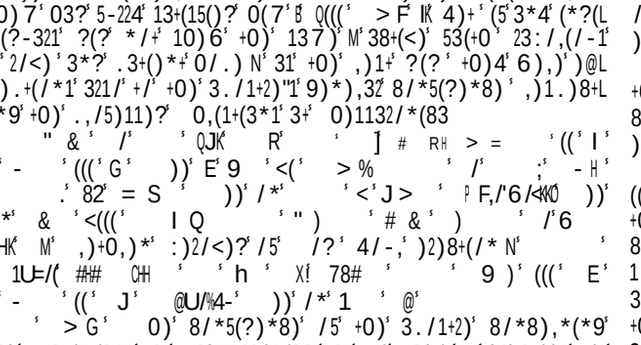
0,(1+(3*1‘ 10/-2?‘ ?)1(,)‘ +/‘ ;*/6‘ /*)‘ 3*/+0),"1‘ 1+3+)‘ 3*?‘ 7-+-32‘ <(1(+1‘ /,‘ 5,()*?24‘ 8/,,)1./*?)*8)‘ 37/*9‘ 53(+05-2‘ 7(*(1+),1‘ 3*?‘ 5)22/6%1),<3*+1‘ /5‘ 0,(1+‘ 734‘ 0)2.‘ 5/,63,?‘ +0(1‘ ?‘ 8/7 7-*(/*‘ /5‘ 13(*+1 ")@8(+)‘ +0)(,‘ .,34),1‘ 5/,‘)380‘ /+0),‘ 3*?‘ 8/*?-8)‘ +/‘ +0)‘ 8/75/,+‘ /5‘ +0)(,‘ 0)3,+1‘ > 03+‘ 37 3S(*9‘ 803*9)1‘ ?/)1‘ ?(<(*)‘ 9,38)‘ 73;)‘ (*‘ 7)*"1‘ 803,38+),1X Z ‘ ‘) ‘ ‘+0-1‘ :)8/7)‘ M‘ 53(+05-2‘ 3*?‘ :)2/<)?‘ :,)+2(,)* N‘ 5+)*‘ M‘ +0)‘ 5(,1+‘ :)% 0‘ 8/7)1‘ 231+‘ 3*?‘ +0)‘ 231+‘ 5(,1+ N‘ (*‘ +0)‘ <(1(:2)‘ 80-,80B ‘ ‘ @(@‘ EI‘ J ‘ @@‘ > ‘ ‘ ‘ & ‘@(((‘ EE‘ > J ‘ +‘ J BK‘ /-,‘ 5)3,1‘ /5 1/7)‘ 60/‘ 03<)‘ 7(1:)03<)?‘ 3,)‘ ,)7/<)?‘ 3*?‘ +0)4‘ :)8/7)‘ M‘ 5)22/6%6/,;),1‘ 60/‘ 3,)‘ 3‘ M‘ 8/75/,+‘ +/‘ -1‘ N‘ 60(2)‘ /-,‘ 0/.)1‘ /5‘ /+0),1‘ 3,)‘ 9,()</-124‘ ?(13../(*+)?‘ -+‘ M‘ +0)‘ /,?‘ ;*/6)+0‘ +0)7‘ +03+‘ 3,)‘ 0(1B N‘ 3*?‘ 6)‘ 10/-2?‘ 32634‘ 1‘ M 23:/-,‘ 5),<)*+24‘ (*‘ .,34),‘ N‘ 5/,‘ +0/1)‘ 8/**)8+)?‘ 6(+0‘ -1‘ M‘ +03+‘ +0)4‘ 734‘ 1+3*?‘ .),5)8+ P M‘ 3*? 8/7.2)+)‘ (*‘ +0)‘ 60/2)‘ 6(22 /5 /?‘ N‘ (*‘ +0(1‘ 73*% P *),‘ +)1+(54(*9/-,‘ S)32 5/,‘ +0) 7‘ 60)*‘ -*3:2)‘ +/‘ ,)*?),‘ +0) 7‘ /+0),‘ 0)2. > (*(1+),1‘)1.)8(3224 60)* +0)4‘ 5(,1+)*+),‘ -./*‘ +0)(,‘ /55(8)‘ /,‘ 60)* +0)4‘ 1)) 7‘ 63<),(*9 (*‘ (+‘ 10/-2? :)‘ 1),(/-124 3*? 355)8+(/*3+)24)@0/+)?‘ M‘ +/‘ +3:)‘ M‘ 0))? +/‘ +0)(,‘ 7(*(1+,4‘ 60(80 +0)4 03<)‘ ,)8)(<)? /5 +0)‘ M‘ /,?‘ +03+‘ +0)4 5-25(2 (+ N /,‘ +0)‘ 17(2)1‘ 523++),()1‘ /,‘ 5,/6*1‘ /5 +0)‘ 6/,2?‘ +0)‘ 1.(,(+‘ /5),,/,‘ 3*? +0)‘ <3,(/-1‘ 6/,:(*91‘ /5 1)25%2/<)‘ +-‘ * 73*4 31(?)‘ /,‘ 2)3? +0) 7‘ (*+/‘ 1-80 3 1+42)‘ /5 .,)380(*9 3*? 2(<(*9‘ 31‘ 8/7)1‘ <),4 53,‘ 10/,+‘ /5 M‘ 5-25(22(*9 +0)(,‘ 7(*(1+,4 N 3*? M‘ 73:(*9 5-22 M‘ .,//5 /5 (+ N 0-1‘ +0)(,‘ /6*‘ 1/-21‘ 3,)‘)*?3*9),)?‘ +0)(,‘ 52/8;1 3,)‘ 1//+0)? (*+/‘ 3 5/,732 .,/5)11(/*‘ /,‘ ?)L 2-?)? (*+/‘) ,/,‘ 3*? +0)‘ .,/7(1(*9 0/.)1‘ 60(80 03? :))*)*+),+3(*)?‘ /5 +0)(,‘ -1)5-2*)11‘ 3,)‘ 2337)*+3:24 ?(1L 3../(*+)?‘)+ 1-80 .),1/*1‘ +0)*‘ M‘ +3:)‘ 0))? +/‘ +0) 7% M‘ 1)2<)1 3*? +/‘ +0)(,‘ ?/8+,(*) N‘ 31‘ +0/1)‘ 60/‘ 1),<)‘ +2<) /,? $)1-1‘ 2)+‘ +0) 7‘ ,)7)7:),‘ +0)‘ 8/-*1)2 /5 #3-2‘ 0(1 :/*?1 5/,‘ 0,(1+‘ 3*? 0(1 23:/,(/-1‘ 1)25%?)*4(*9 53(+05-2L *)11‘)<)* -*+/‘ ?)3+0‘ 5/,‘ (* .,)380(*9 0(1‘ ?/8+,(*)‘ (7L :(:(*9 0(1 1.(,(+‘ 3*? 8/.4(*9 0(1)@37.2)‘ 6)‘ 734)@.)8+ +03+‘ +0)‘ 53</-,‘ 3*? :2)11(*9 /5 /? 6(22 :)‘ 6(+0‘ /-,‘ 1/-21‘ 3*? .,/1.),‘ 322 +0)‘ 23:/-,1‘ /5 /-,‘ 03*?‘ %Q /+)1‘ ‘ - ‘ (<‘ > K

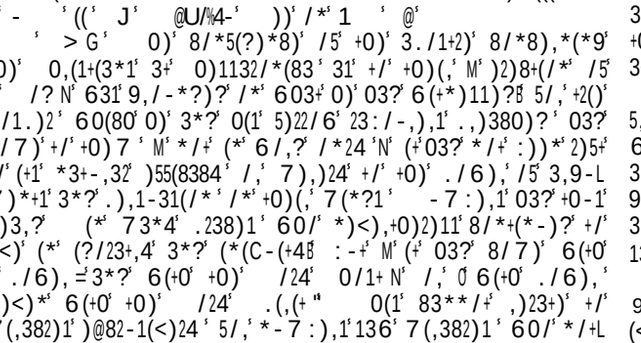


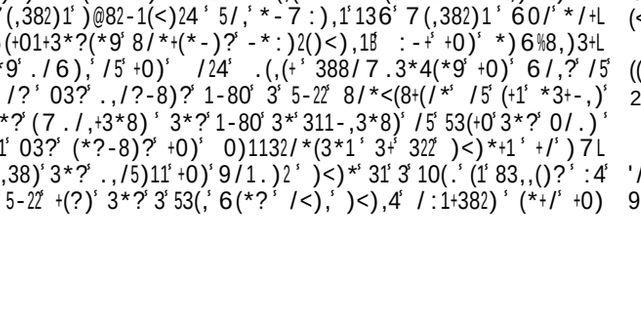


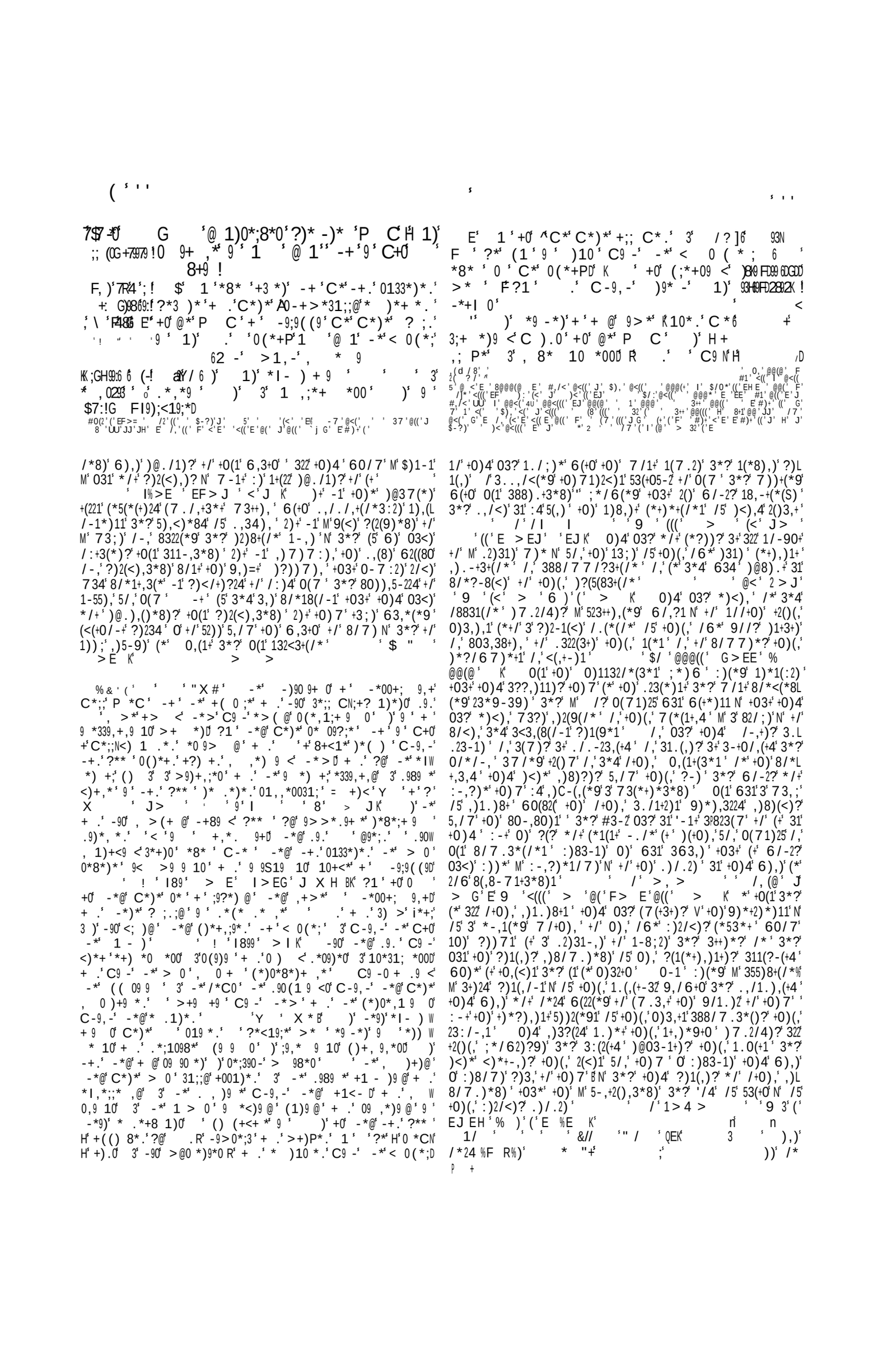


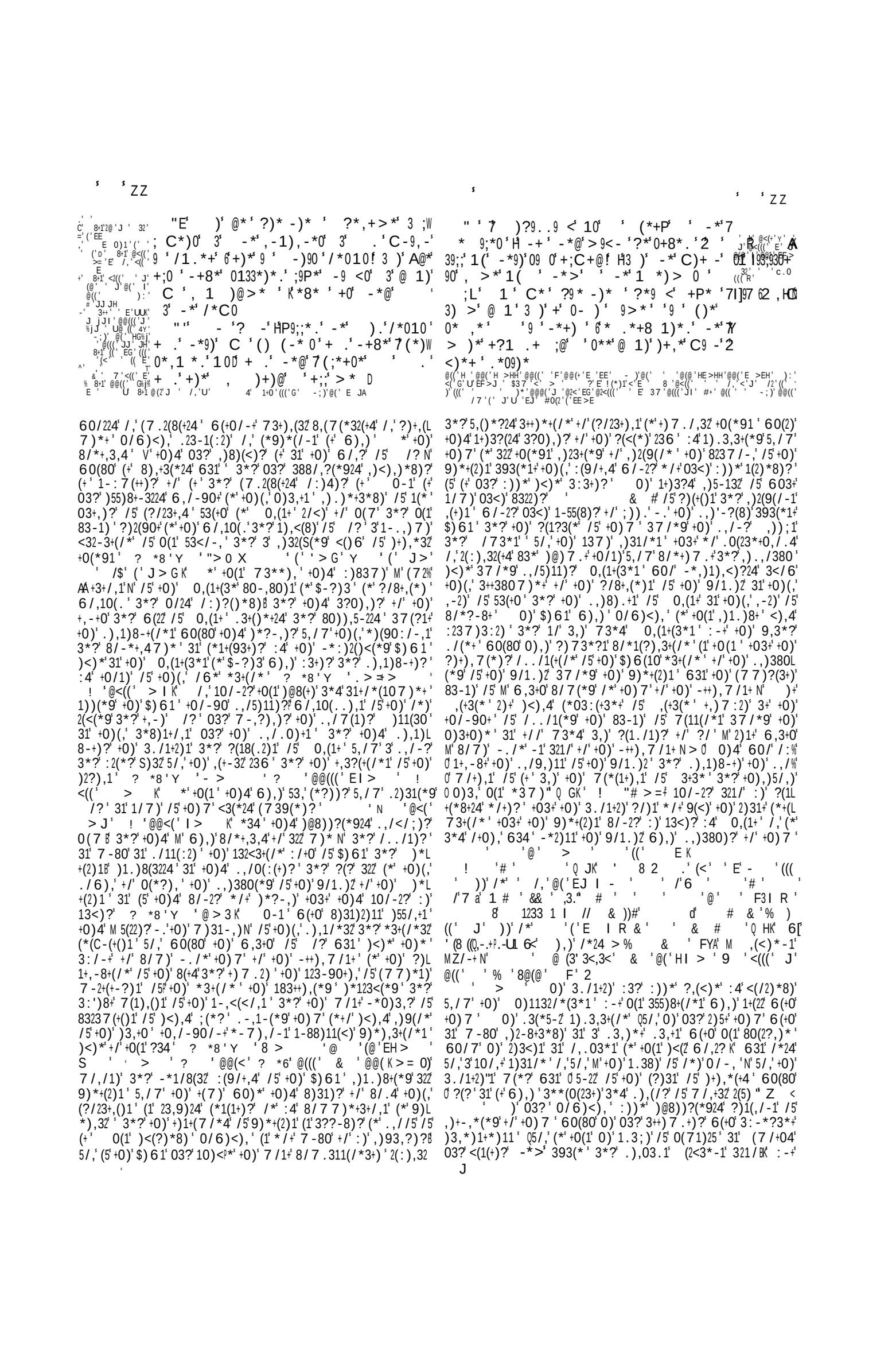


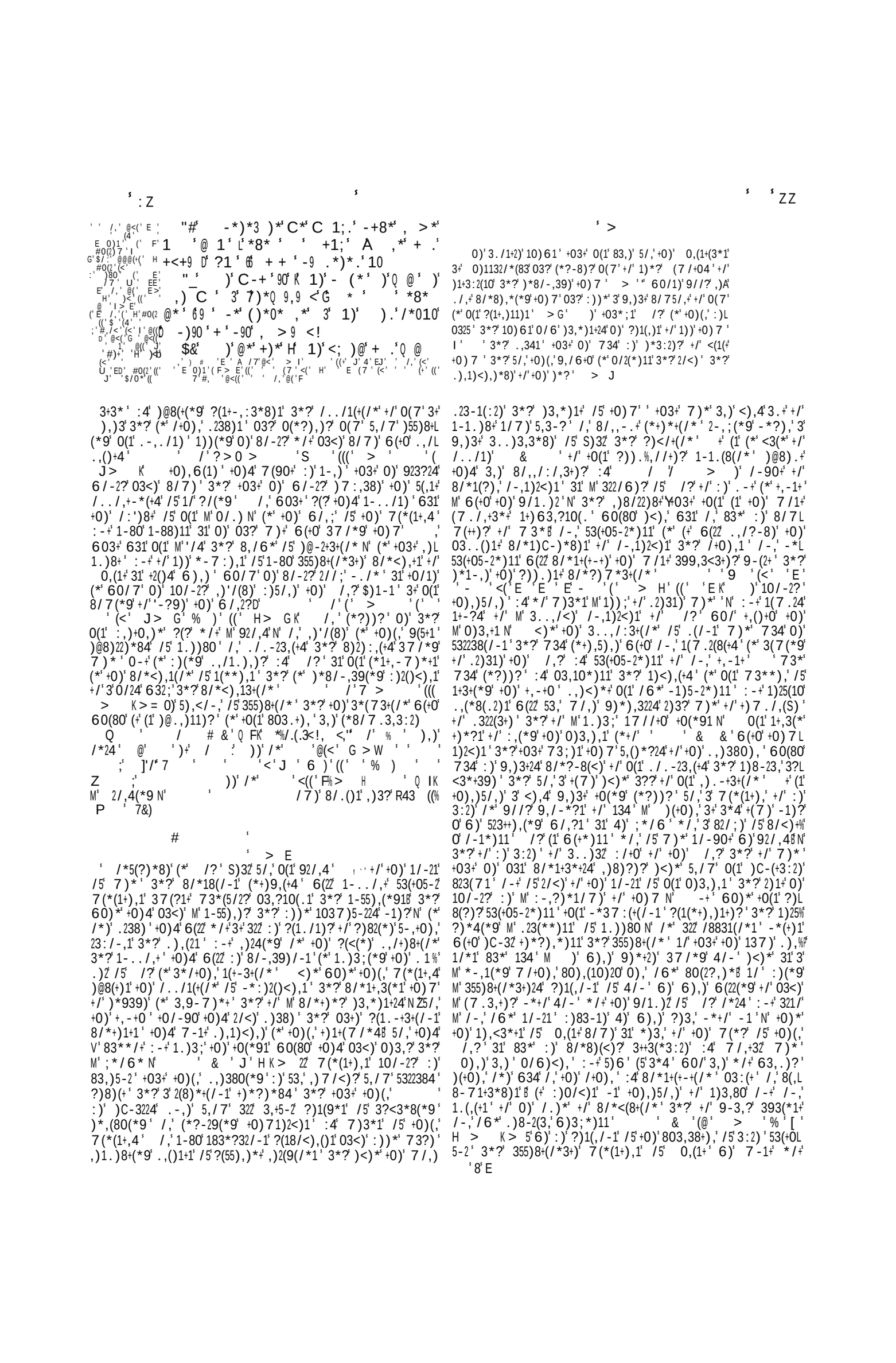


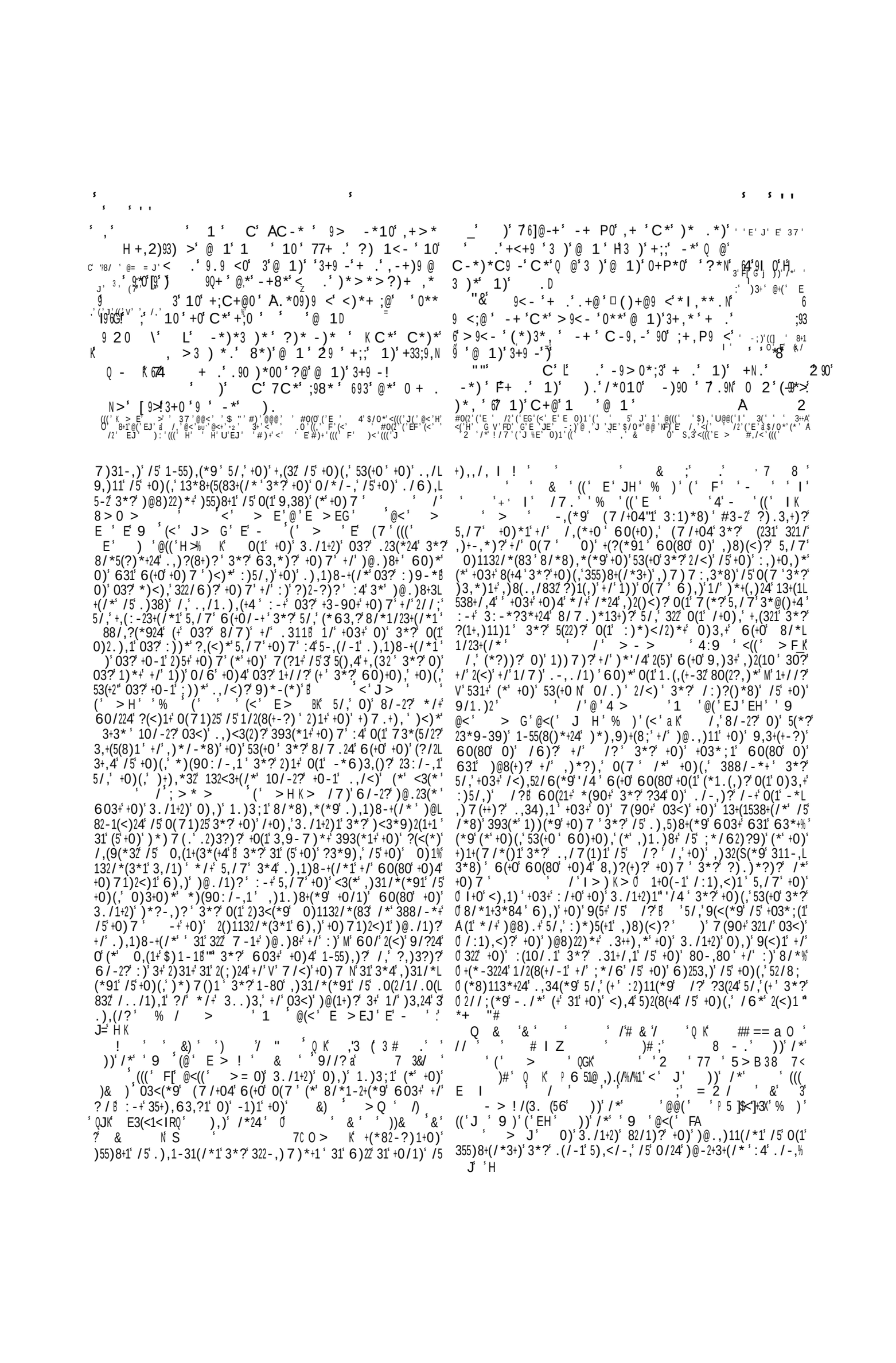


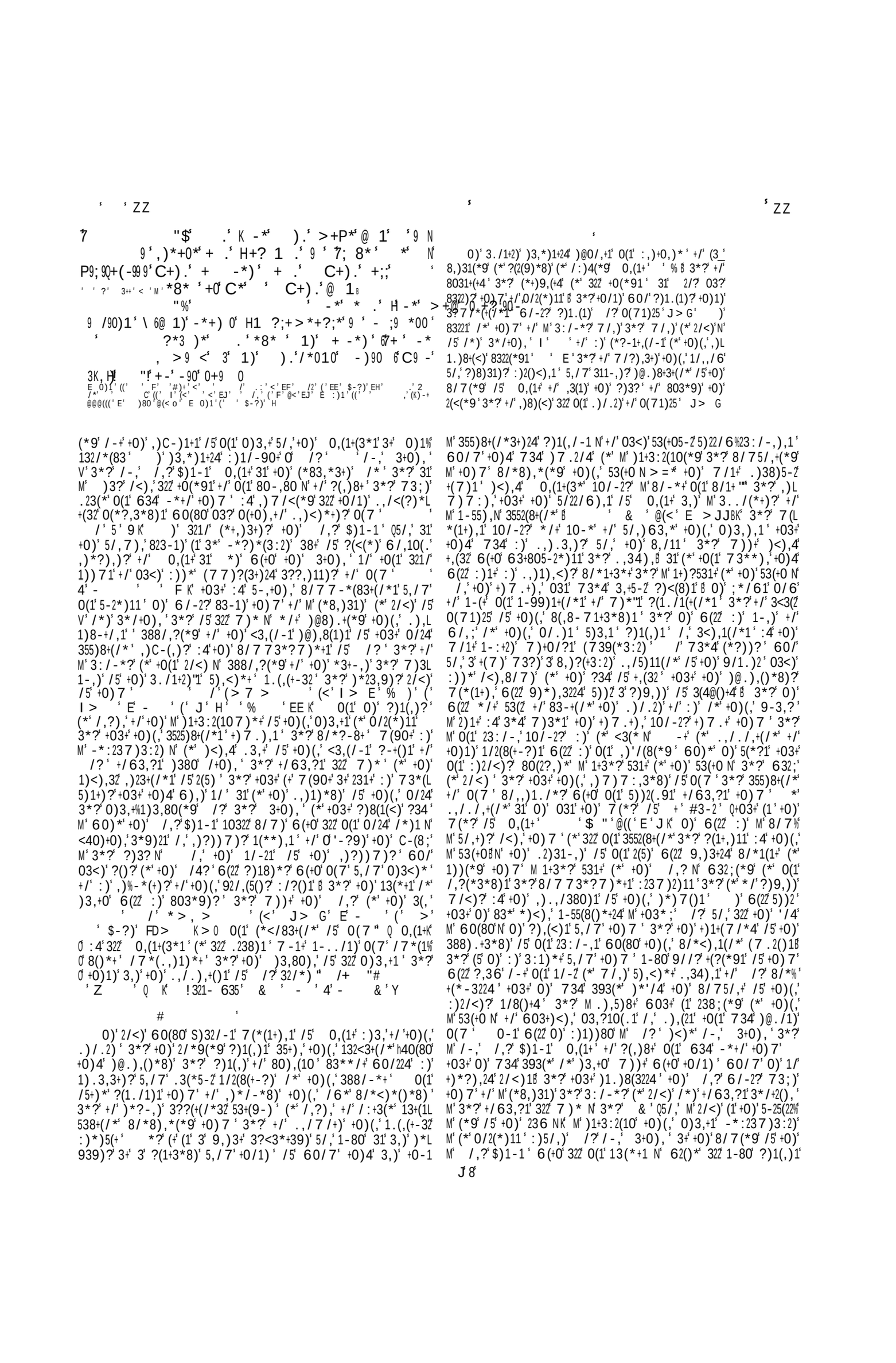


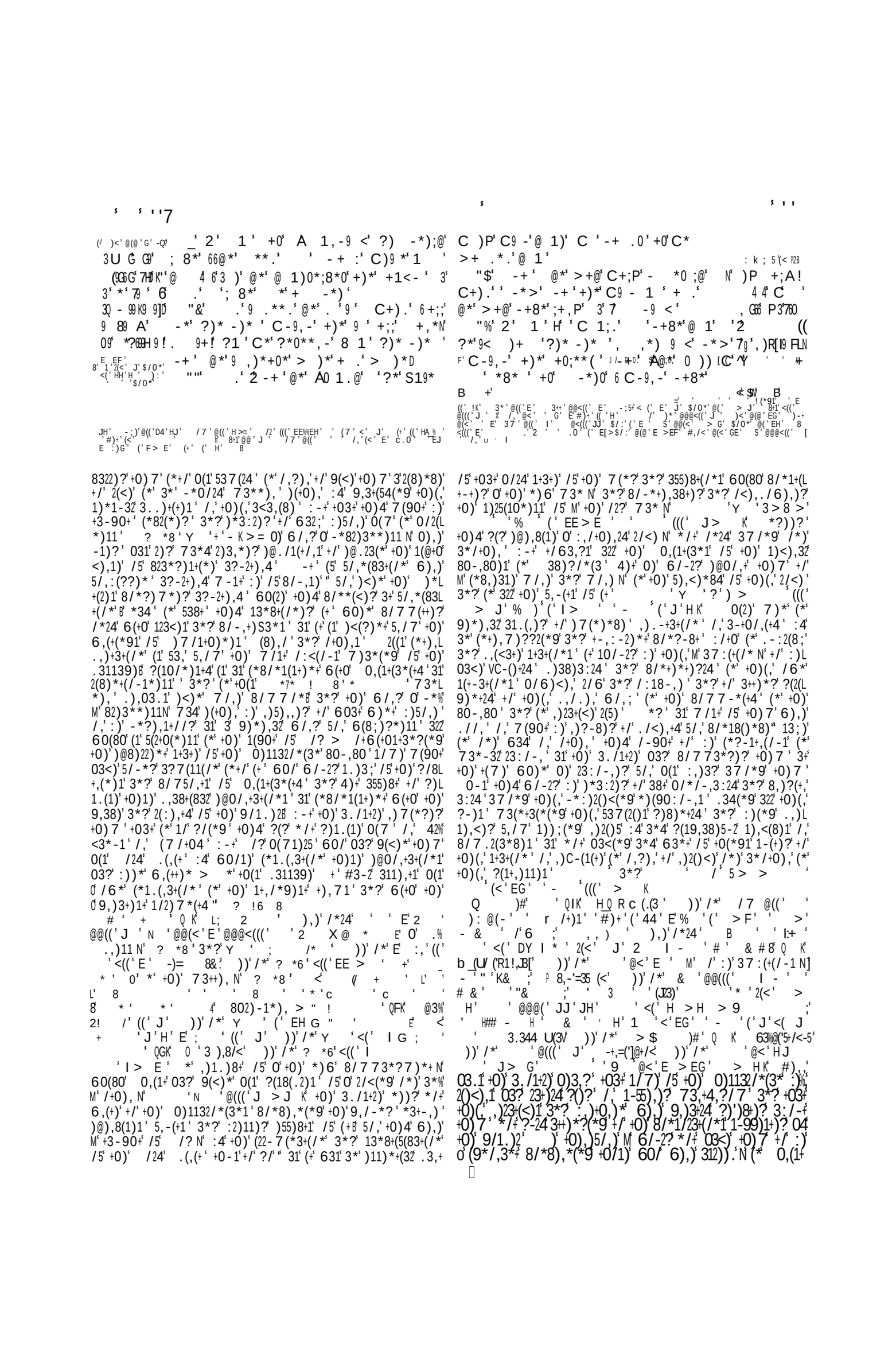


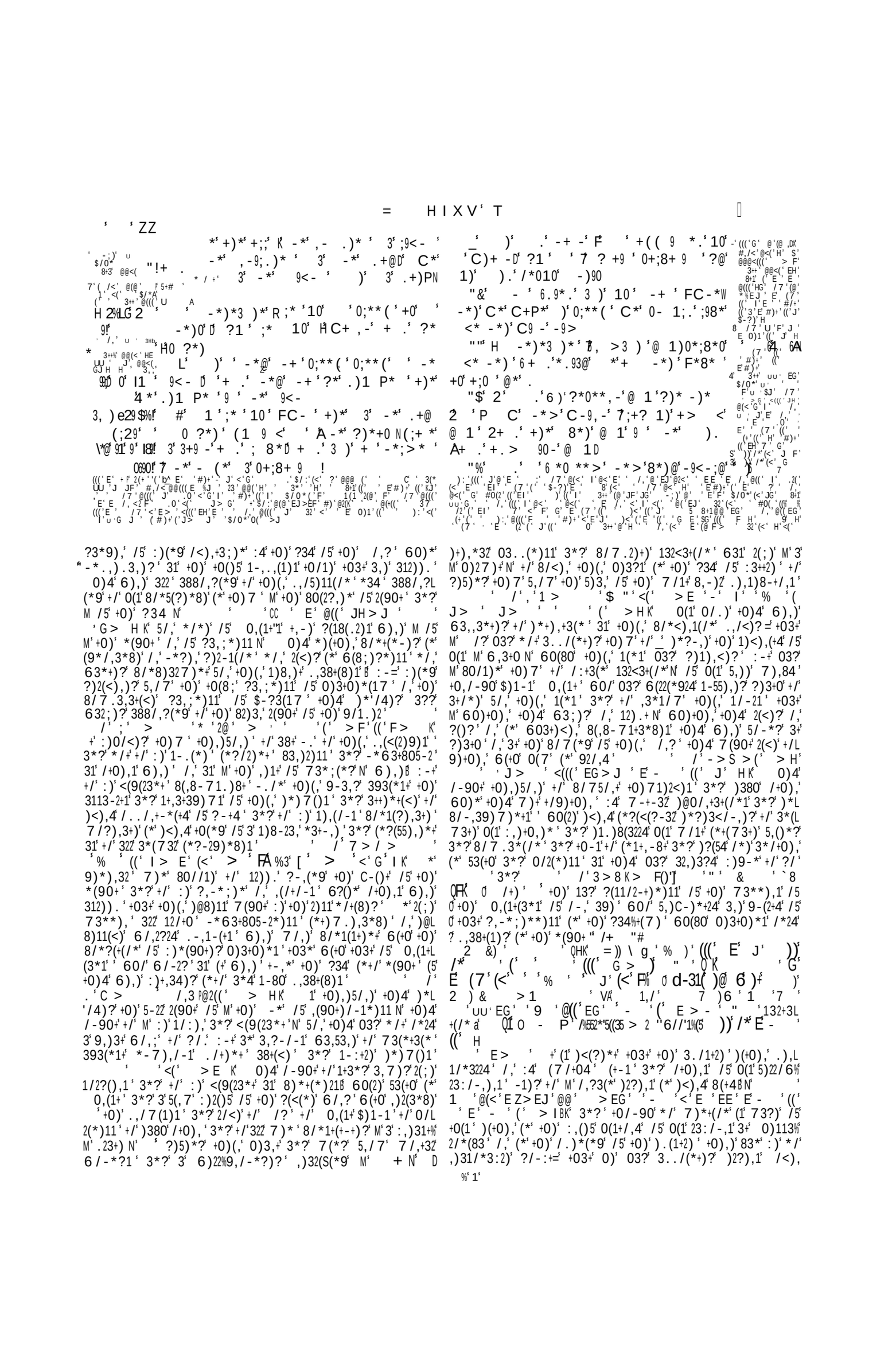


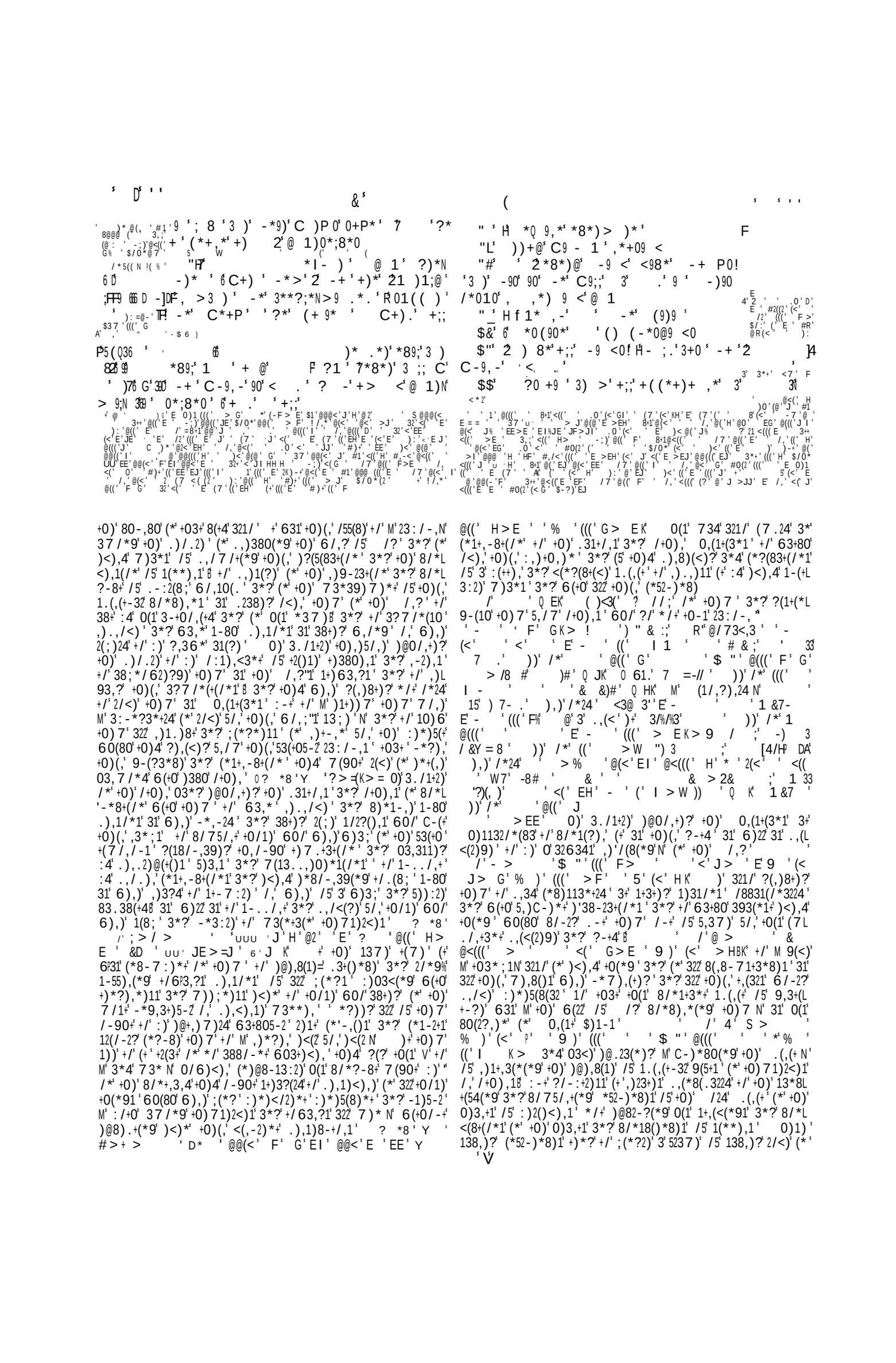


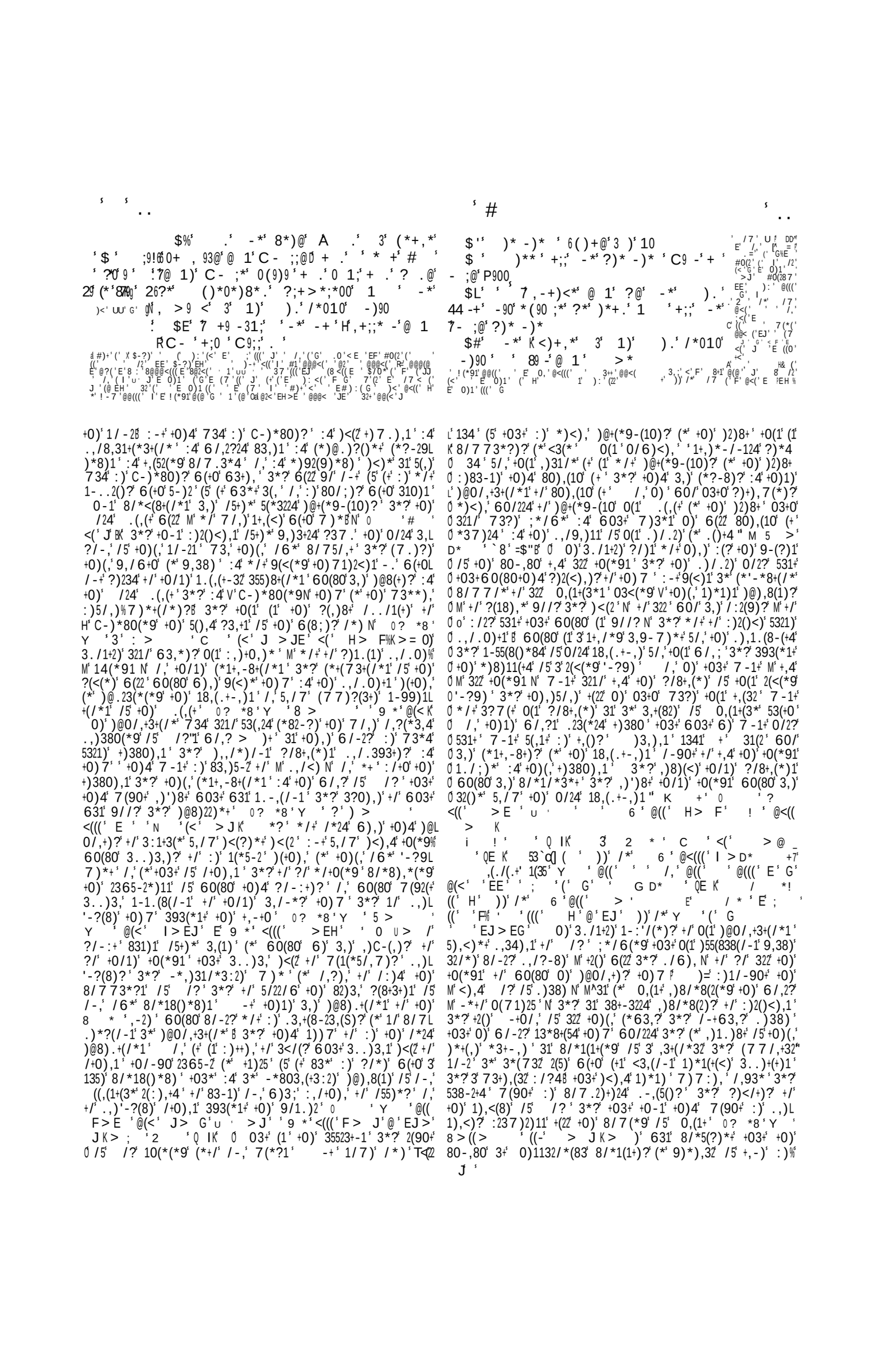












= +( ) I %2J H %J

& .(1+2) (1 8/7 7/*24 1-../1)?+/ 03<) :))* 6,(++)* 5,/7 /,(*+0 */+ <),4 2/*9 35+), +0) 5/,)9/(*9 :)83-1) (2<3*-1 3*? (7/+04 1+(22)/*+(*-)? 6(+0 #3-2 :-+ +0))<(?)*8) (1 */+ <),4 8/*82-1(<) 3*? 1/7) ?(55(8-2+()1 3++)*? +0(1 /.(*(/* Q(:+) (J H K + (1 0/6)<), 8),+3(* +03+ (+ 631 */+ 1)*+ 5,/7 +0)*1 388/,?(*9 +/ +0) 1.-,(/-1 ./1+18,(.+ > 0) 73(* /:')8+ /5 +0)).(1+2) 1)) 71 +/ 03<) :))* +/ .,)<)*+ 7(1+3;)1 60(80 +0) 0,(1+(3*1 3+ 0)113% 2/*(83 6),) 3:/-+ +/ 5322 (*+/ 8/*8),*(*9 +0) *)3, 3../380 /5 +0) ?34 /5 '-?9 7)*+ 9,/-*?)? (* .3, + /* 3 7(18/*L 1+,-8+(/* /5 1/7))@.,)11(/*1 (* 0(1 5/,7),).(1+2) 3*? /5 603+ +0) 3./1+2) 03?1./;)* 60)* 6(+0 +0) 7 :-+ 1-.L ./,+)?321/ :4 1/7) .),1/* /, .),1/*1 73;(*9 3 823(7 +/ (*1.(,3+(/* 3*? 31 1/7) +0(*; :4 3 5/,9)?).(1+2) 1 +0(1 /.(*(/* 631 /5 3 <),4 (*'-,(/-1 +)*?)*84 +0) 3./1+2) 1+,)*-/-124 /../1)? (+ ((> H K >) 03? 321/ 0)3,? /5 1/7) (*?(<(?-321 60/ /* ,)2(9(/-1 .,)+)*8)1 *)92)8+)? +0),(,1)8-23,)7.2/47)*+1 3*? 632;)? ?(1/,?),24 60/7 0))@0/,+)? 0(1 :,)+0,)* +/ 8)*1-,) 3*? 10-* 4)+ 1/ 31 +/ 1)) ;+0),(, 9//? 7(?1+ 3 *-7:), /5 (*1+,-8+(<) 63,*L (*91)@0/,+3+(/*1 3*?)*8/-,39)7)*+1 (+ 8/*+3(*1 3 7/1+ ,)73,;3:2) .,/.0)84 ((J > E K +0))@38+ 5-25(2L 7)*+ /5 60(80 (1 3 5-22 ?)7/*1+,3+(/* /5 +0) ?(<(*) (*1.(,3+(/* :4 60(80 +0) 3./1+2) 6,/+) 0(1).(1+2)1 > 0)1(?)1 0 +0) 9)*),32 73,;1 /5 (+1 9)*-(*)*)11 3*? ?(<(*) 3-+0/,(+4 60(80 (+ :)3,1 (* 8/7 7/* 6(+0 +0) ,)1+ /5 +0)).(1+2)1 (+ 0 031 /*) .)8-2(3, +/ (+1)25 5,/7 +0) @38+ ,).,)1)*+3+(/* (+ 8/*+3(*1 /5 +0) .3.3 ./6), -*?), +0) 803,38+),1 /5 M +0) 0 0 73* /5 1(* N 3*? M +0) 741+),4 /5 (*(C-(+4 N /, 8/*1(?),(*9 0/6 ?(,)8+24 /../1(+) +0) .,(*8(.2)1 0),) ?)% 0 18,(:)? 6),) +/ +0) 9),*(-1 /5 0,(1+(3*(+4 (+ 7-1+ 3..)3, 3+ +0) +(7) 60)* +0(1).(1+2) 631 6,(++)* 0(9024 (7% 0 ./:3:2) +/ 322 & 3..,)0)*1(/* +03+ +0)4 10/-2?)<), .,)<3(2 (* +0) 0,(1+(3* 80-,80 3*? 8/*1)C-)*+24 3 .,)% 0 ?(8+(/* 2(;) +0(1 60(80 3*16),1 (*)<),4 .3,+(8-23, 1/)@38+24 +/ +0))<)*+ 7-1+ :) 322/6)? +/ 83,,4 (+1 /6* 0)<(?)*8) 6(+0 (+ 3*? +/ .,/<) +03+ +0) 3-+0/, /5 (+ 6,/+) -*?), 3 ?(<(*) (*52-)*8) " Z

1 R

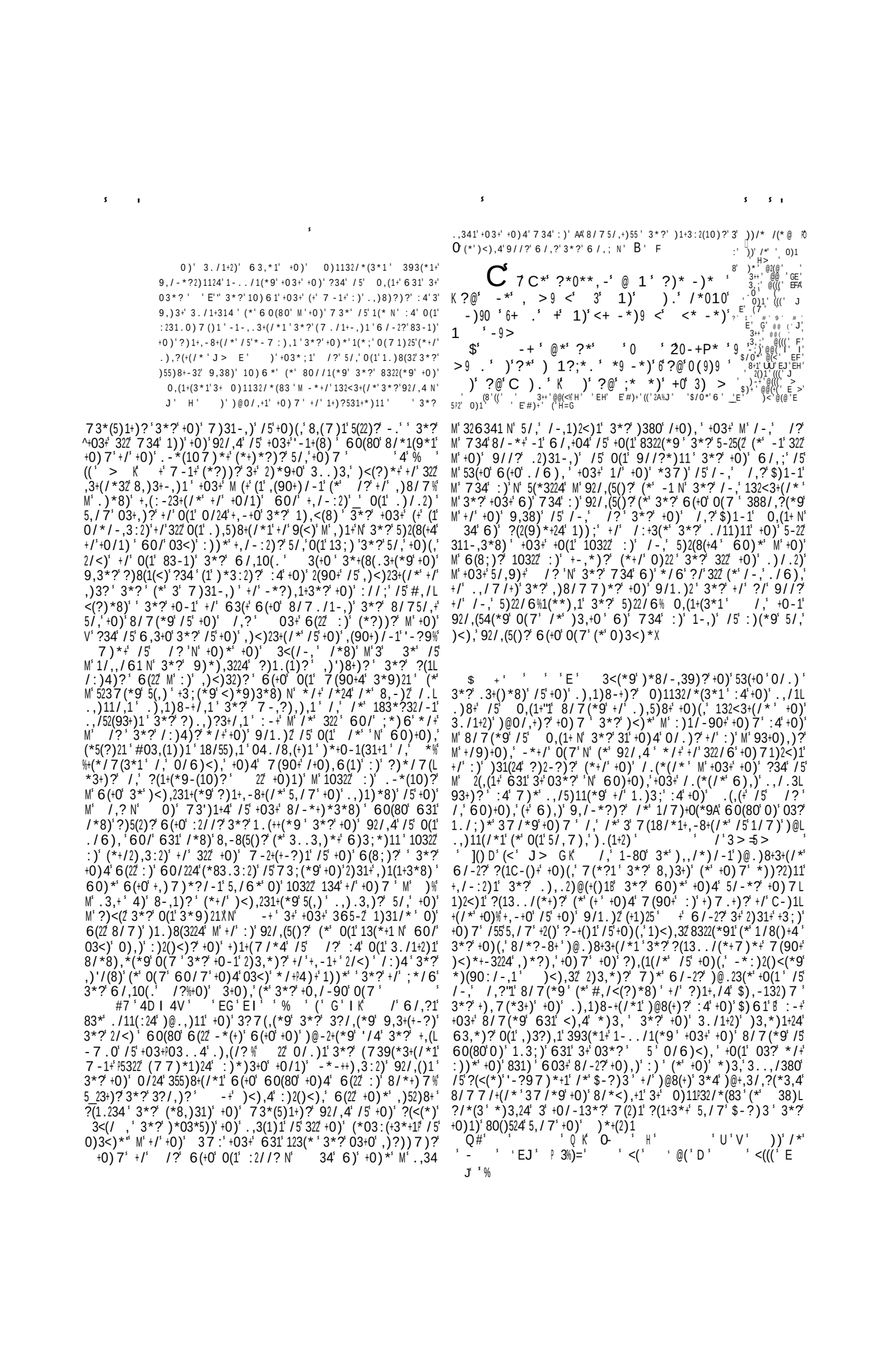
#

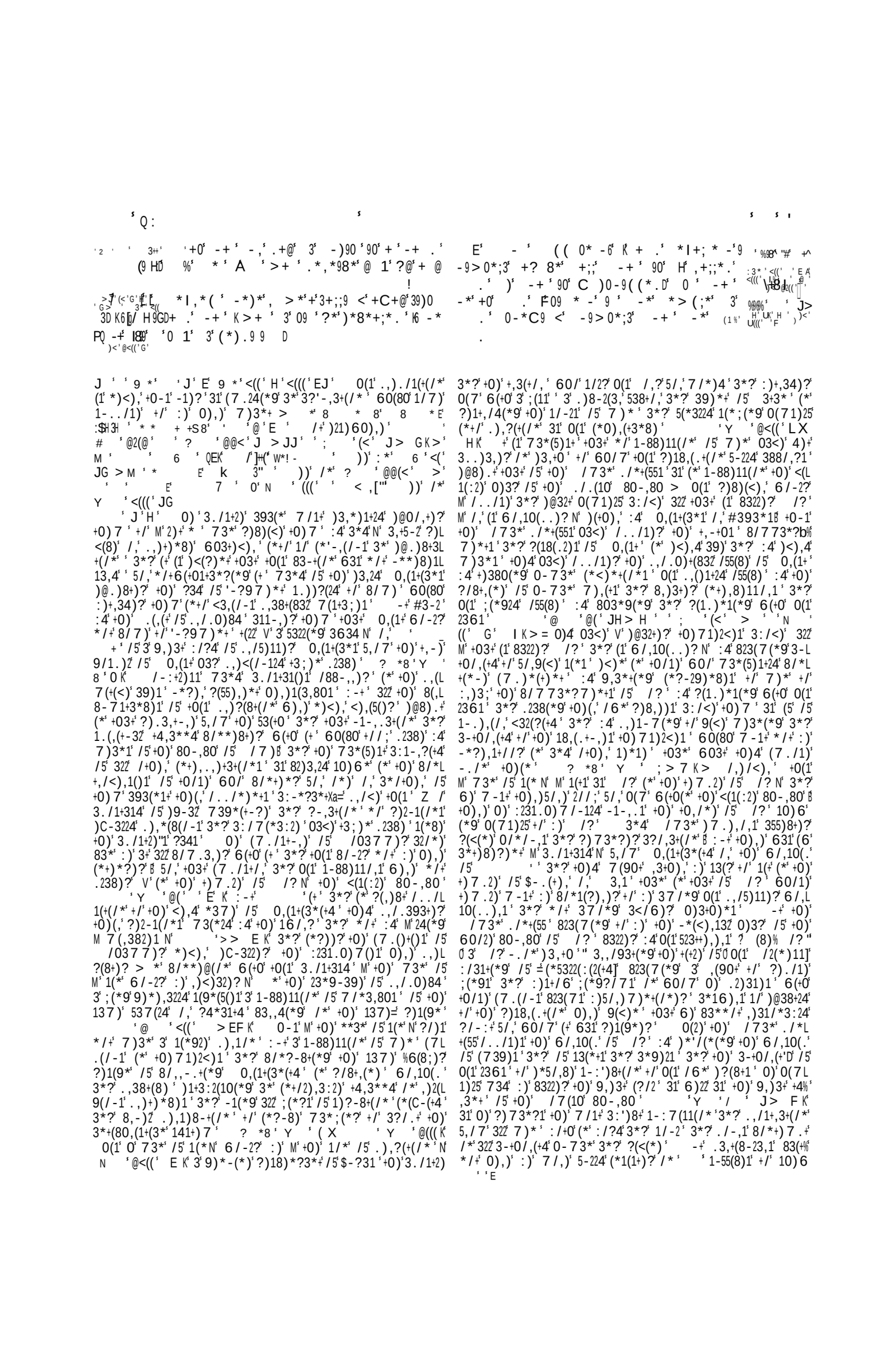
0) 3./1+2) 132-+)1 +0) 0-,80 /5 +0) 0)1132/% *(3*1 E +03*;1 /? 5/, +0),(,9,/6+0 (* 53(+0 3*? 2/<))*8/-,39)1 +0),(, .),1)<),3*8) -*?), .),1)8-L +(/*1 :4 +0) .,/1.)8 /5 +0) 8/7(*9 /5 0,(1+ 3*? 10)61 0/6 92/,(/-1 0) 6(22 +0)* 3..)3, (* +0) ?)1+,-8L +(/* /5 322 -*:)2()<),1 3*? +0) 8/7.2)+) 132<3+(/* /5 0(1 .)/.2) J>) .,341 5/, +0),(, .),5)8 13*8+(% 5(83+(/* 3*? 7))+*)11 5/, 0)3<)*24 5)2(8+4 :4 +0) 9,38) 3*? 5/, +0) 92/,4 /5 /? +0) 3+0), 3*? +0) /,? $)1-1 0,(1+ E

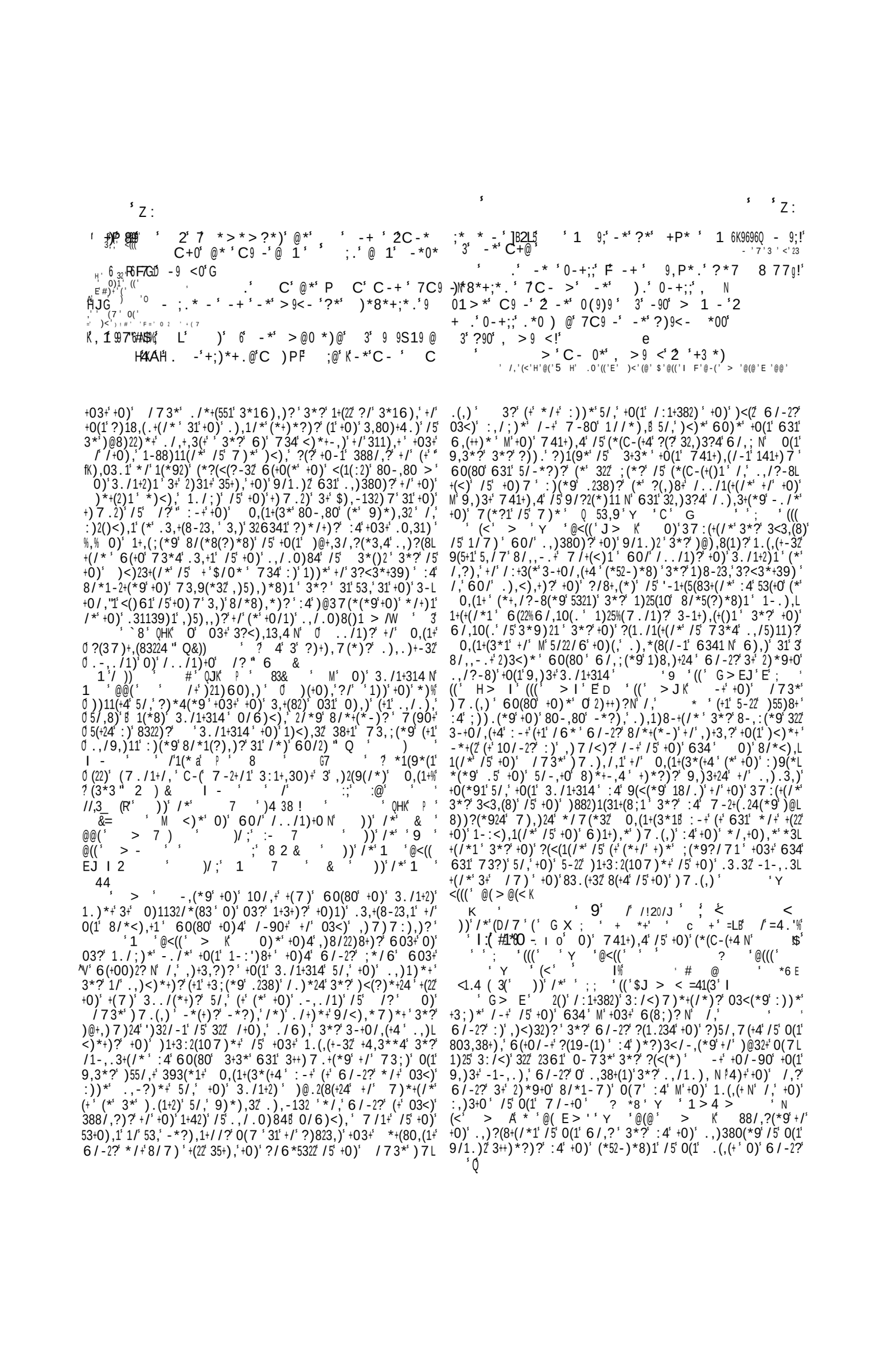
" < H+ . 9;8+ 10 + . 9> N 3 2 4 9 : (I (, QR,(, (-*10 1 -* ,-1),- 3 -* -*00+N F /,7 0 ; 9+ 0 9 . 1) + -*) + . -*). 8 ((J >)) /* /,/(G /, /*010 -)90 ! H $)+,* 71 @ 1 + . (*+,* 3) > #0(2 F E#)+ (J . 1) + -*) + . -*). /*010 @@@<(' F -)90 % * 6+)* ? 1 . -+ P . +;W #0(2 1 $<) 1 $<) #)+ (> IA C+@0 3) @ 1 ?)* -)* H+0 9 90 > ** 0) 8<(U =A ?*,+10* -+ A@ 1) 3+9 - <) C* -* IN 4 #)+ (((

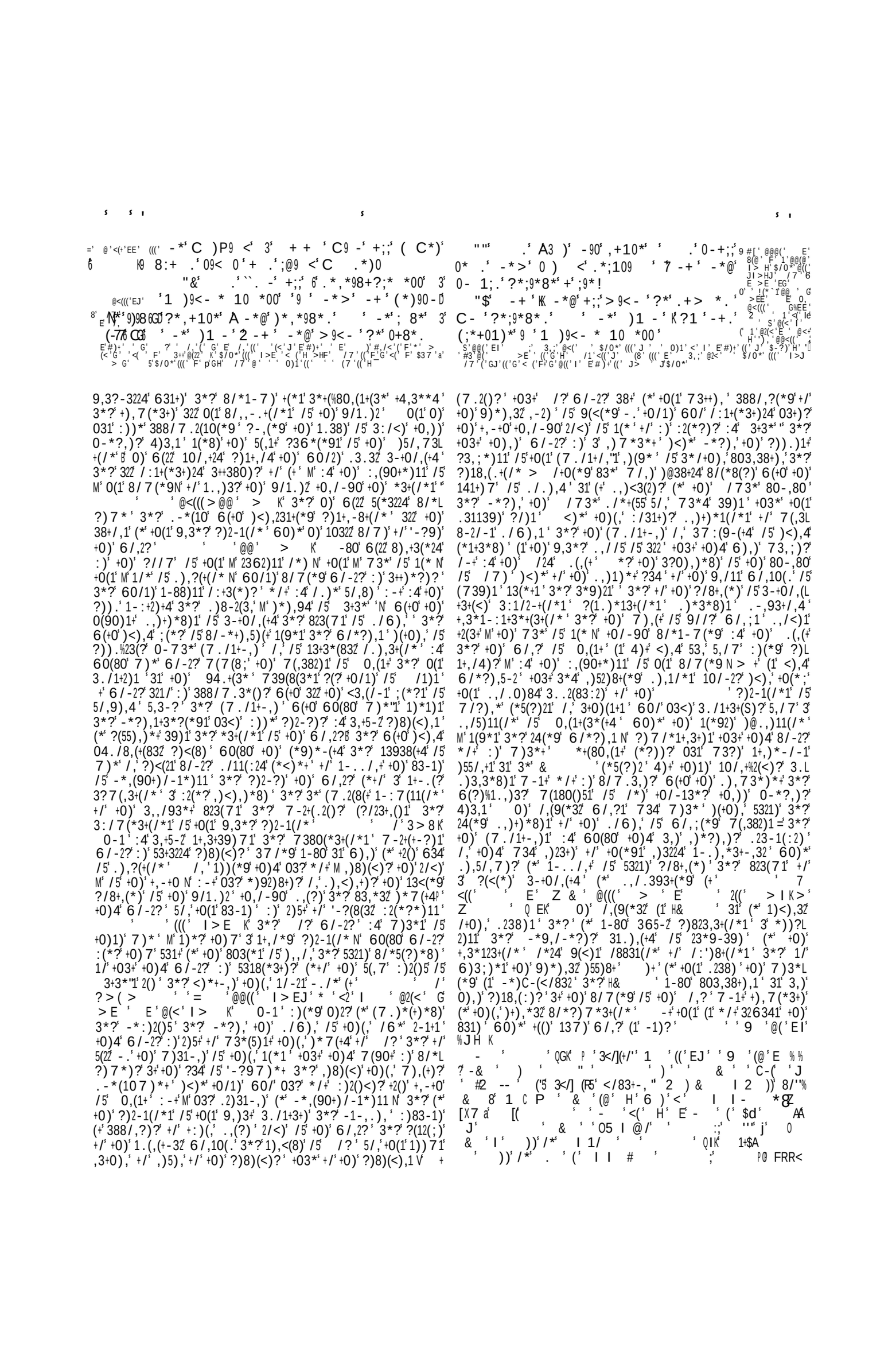
$ +& D S ? / > 9 "LX$& " 5*0 9 "NXE % 9 6 "7$ 9 EX

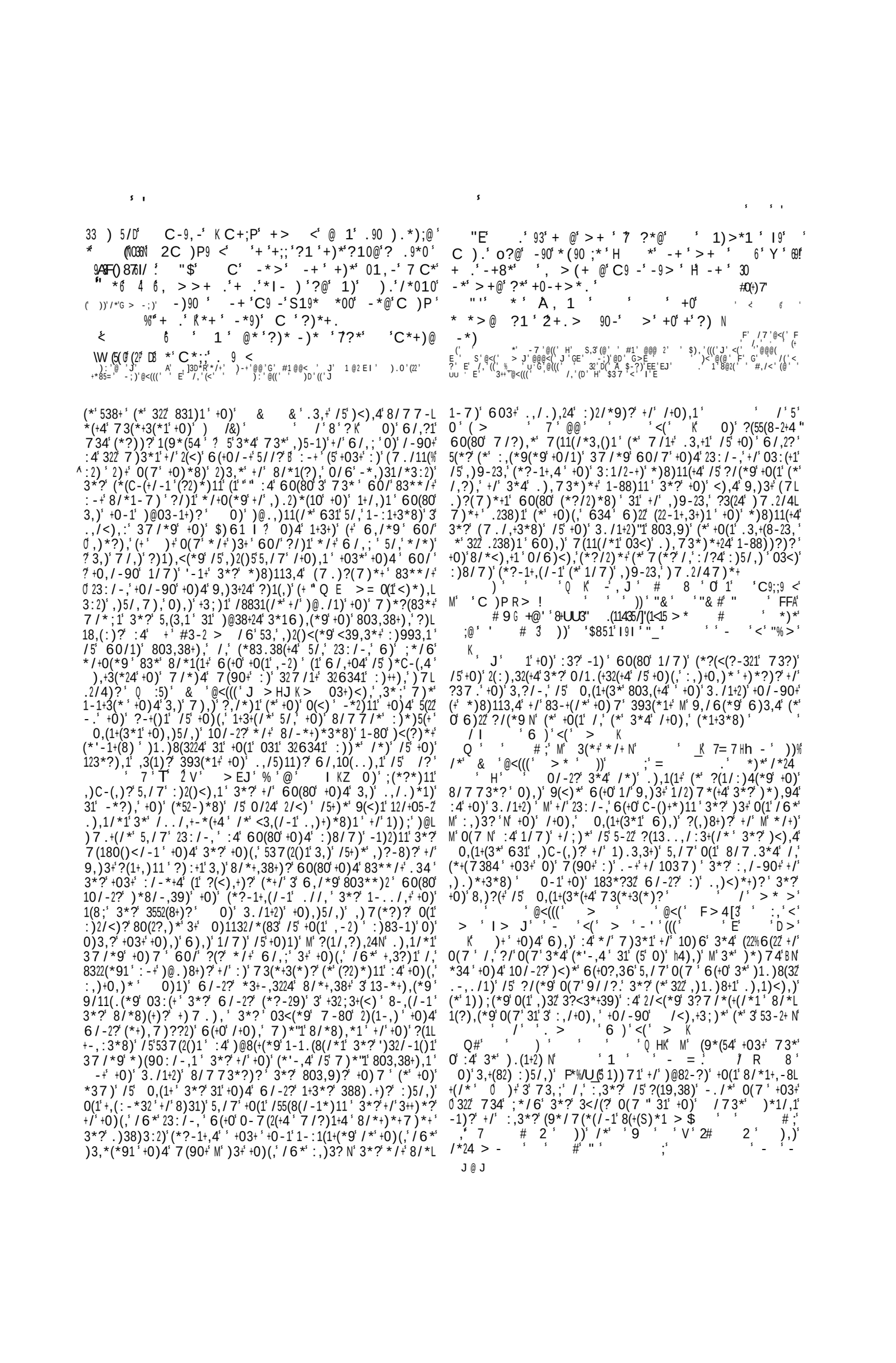
J * G H 0) 3./1+2) 1(*8) 0) 6,/+) +0) 5/,)9/(*9).(1+2) 03?,)8)(<)?5-,+0), 388/-*+1 8/*8),*(*9 +0) 80-,80 3+ 0)1132/*(83 60(80 6),) 1/ 5-224 13+(1538+/,4 +03+ 0) ?))7)? 0(71)25 :/-*? +/ ,)+-,* 8/*+(*-32 +03*;1

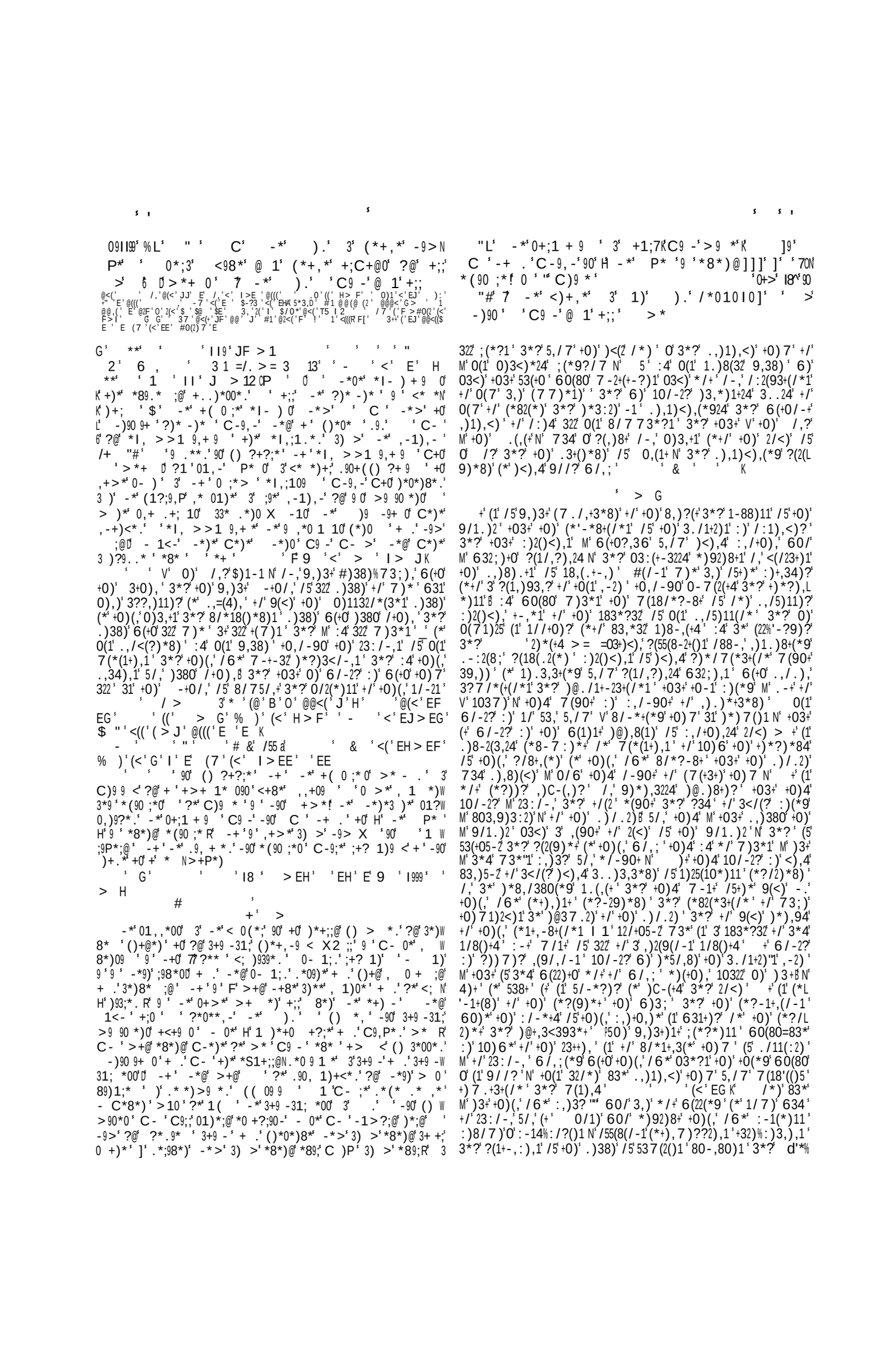


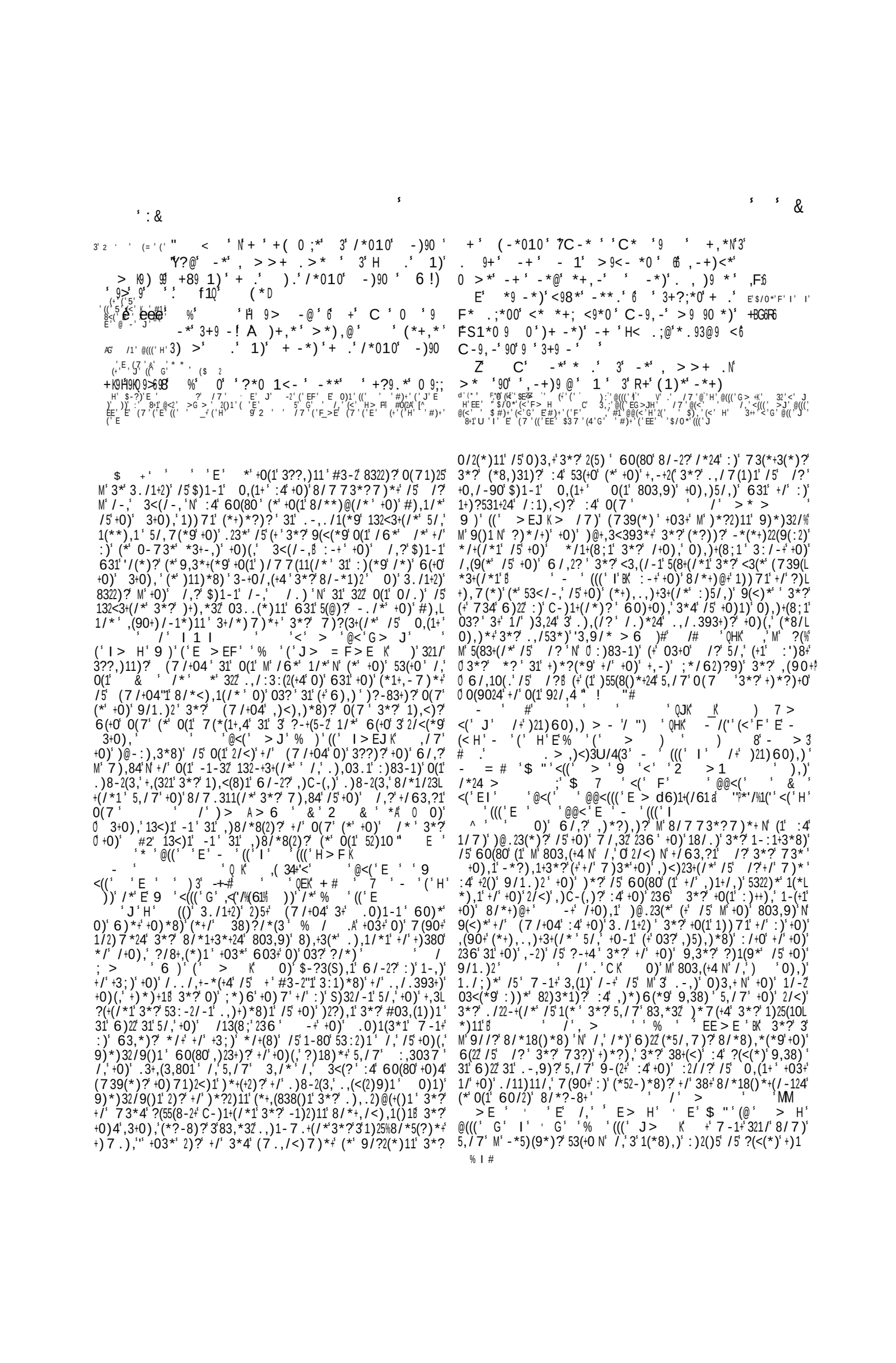


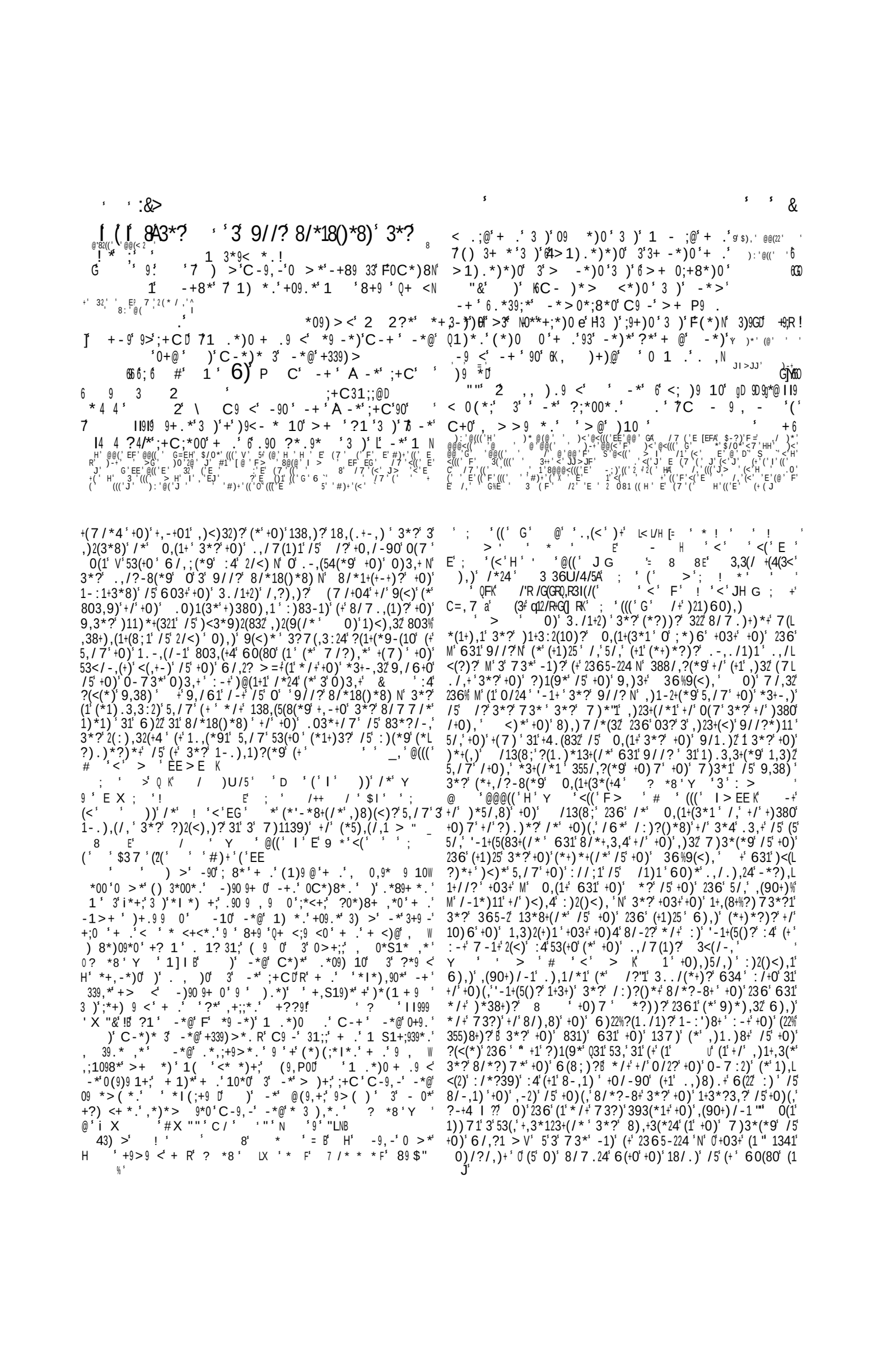


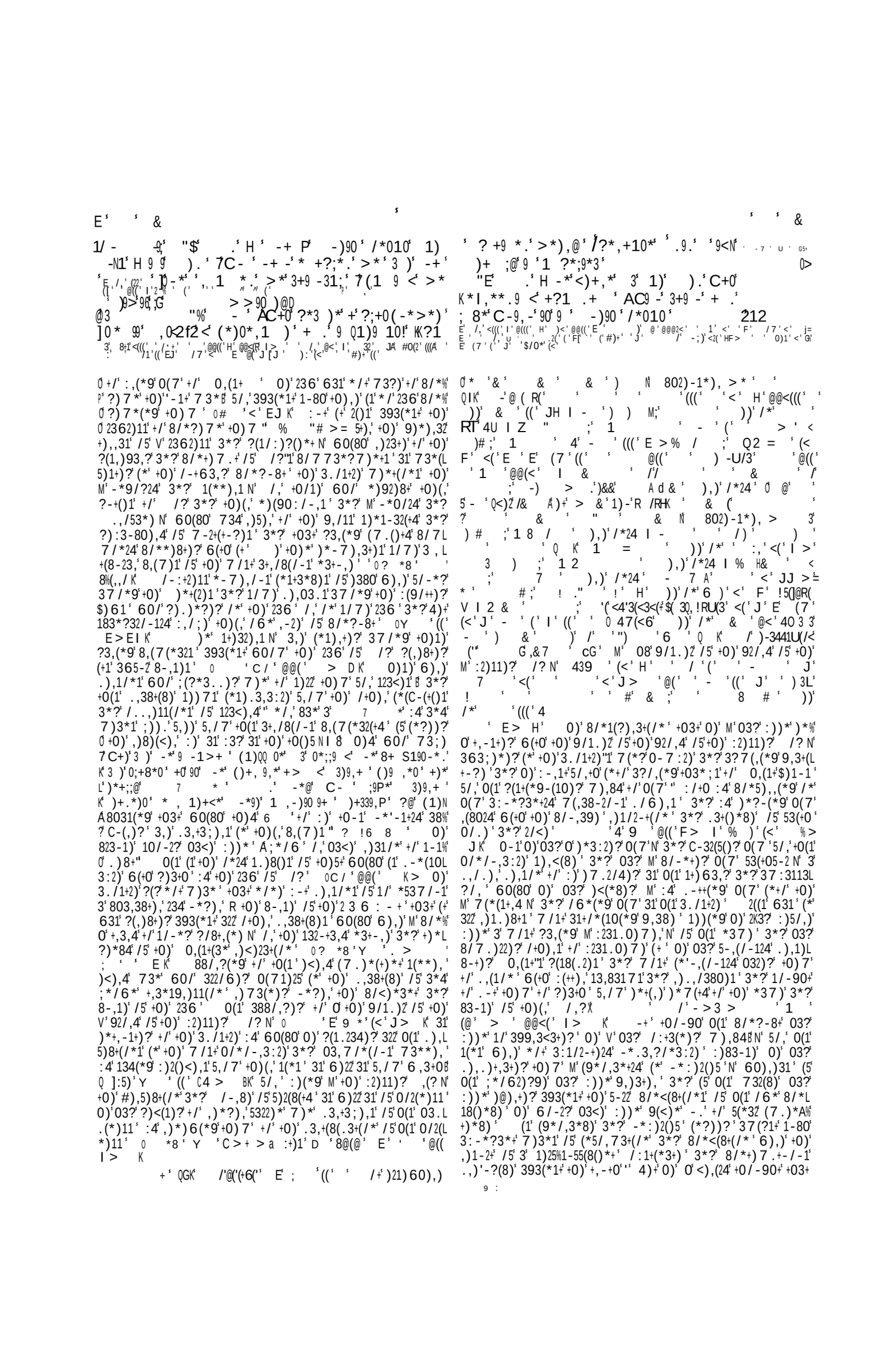


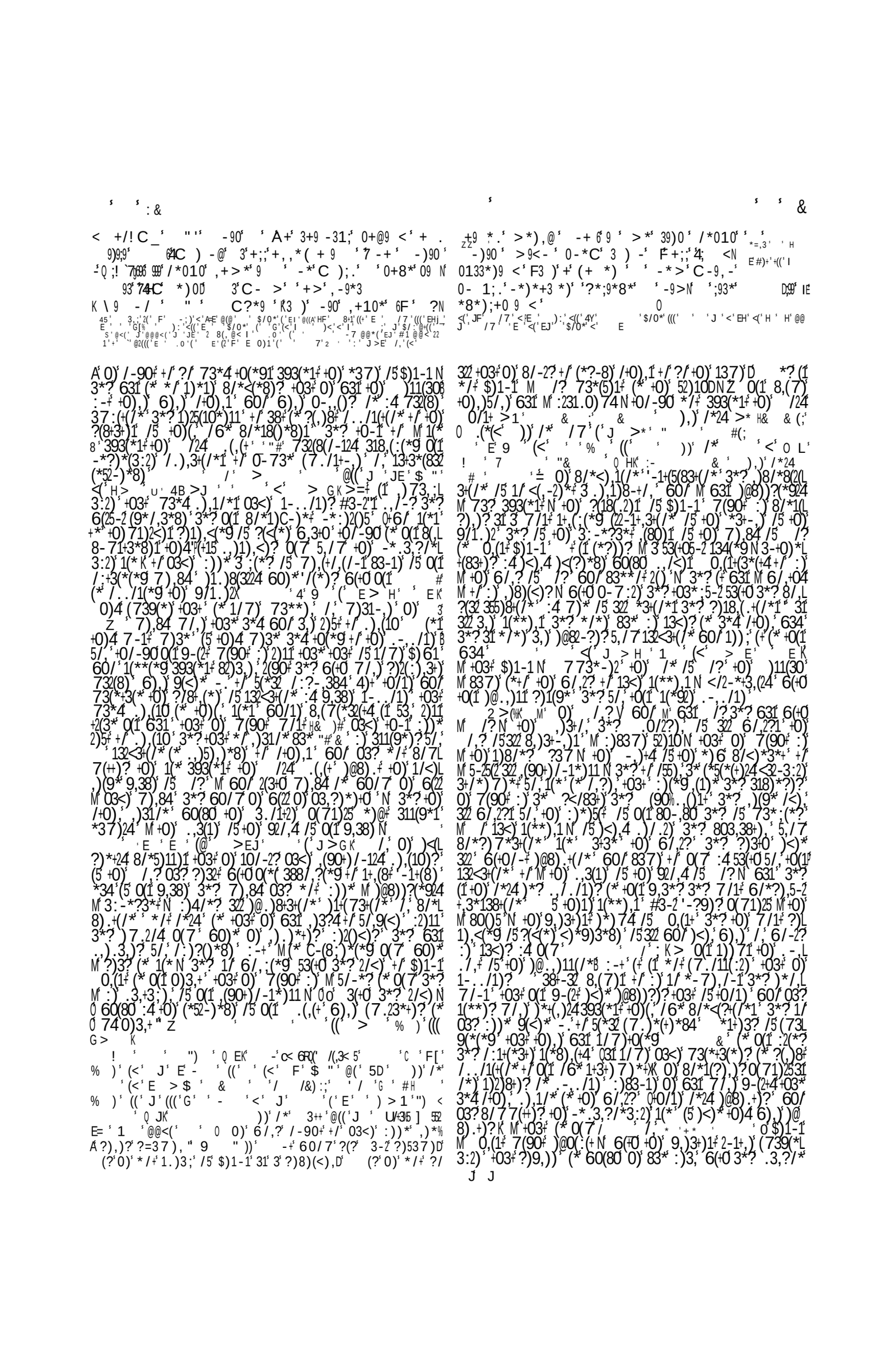


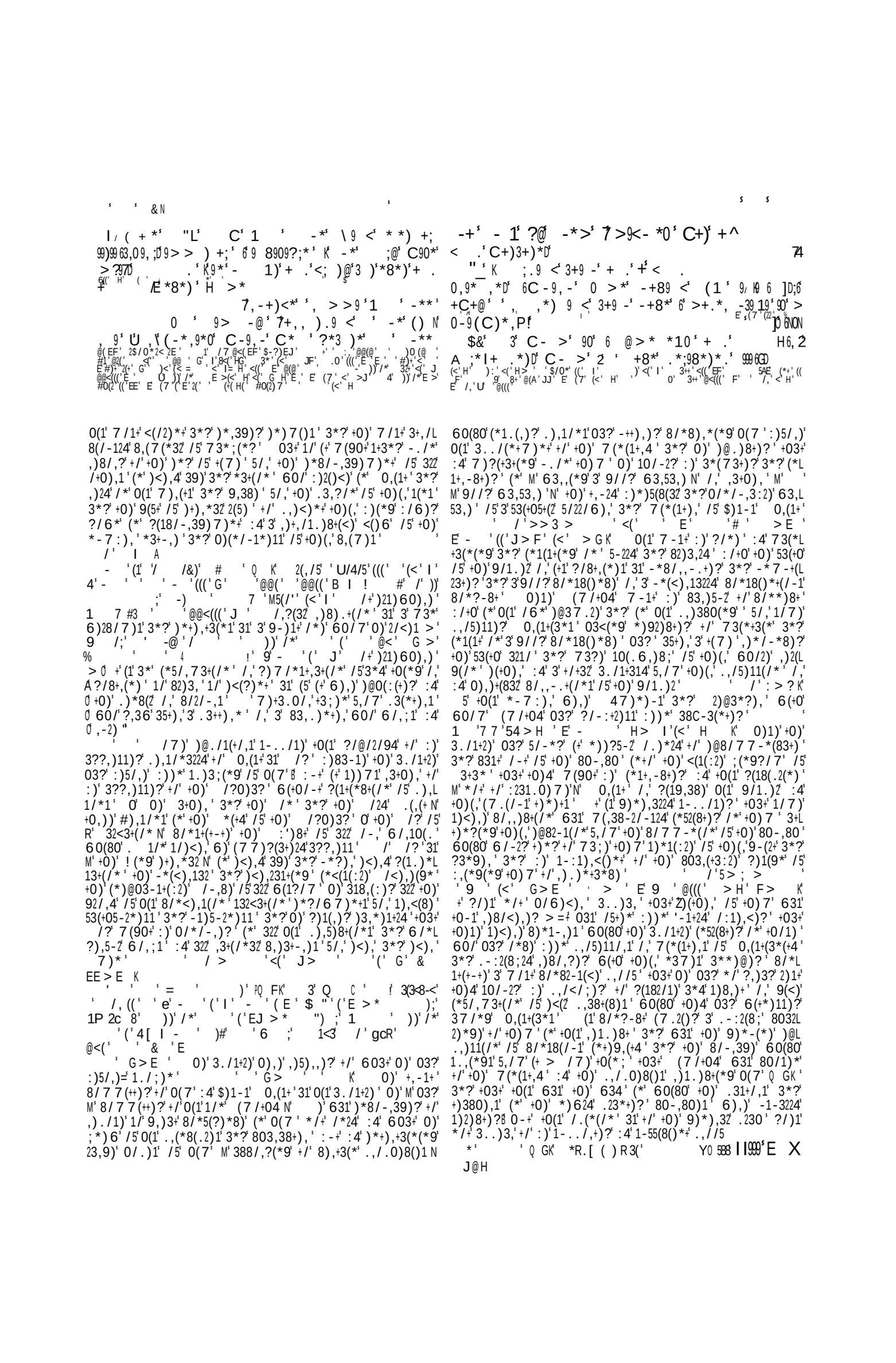












' /,' _^ E' 1 ' + + ' K -+ ' -*@' >+@' ;*+) ' '
A' E' 8+' @(2(' H
)<' @ (' A R_ ' H?;+0(-*>*
#' *

0)' 3./1?)')*'/(*1' .,34),1' 3*?' +03*';19(<(*91' +/'
:)' 73?)'5/,'322 7)*')1.)8(3224'5/,' ;(*91'3*?',-2),1'+/'
PA' /?'/-,' 3<(/-,' 60/' (1' 6(22(*9'+03+' 322' 10/-2?':)'
AA13<)?N' > ' 0),)'(1'M'/*)' /?'3*?'/*)')?(%

V3+/,'$)1-1' 0,(1+' 60/'93<)' 0(71)25'3',3*1/7'5/,'
M'322'+/':)'+)1+(5()?'(*' ?-)'+(7)N' ' ')'?)823,)1'
0(1' 3../(*+7)*+' 31' +0)' +)380),'/5'+0)')*+(2)1'FB'
9(<)1'?(,)8+(/*1'8/*8),*(*9'.,34),' 3*?'+0)' 7/?)1+3.L
.3,)2'/5'6/7)*' G> ' .,/0(:(+1' +0)7' +/' +)380'3*?'
,)C-(,)1' +0)7'+/':)'(*' 1-:')8+(/*' ' E' 31'+0)' 73*'
631'5(,1+8,)3+)?'3*?'+0)'6/73*'631'5(,1+1)?-8)?'(*+/'
1(*' J' H' ' .,/7(1)'8/*8),*(*9'80(2%:)3,(*9'

1' ' / ;' !7>H' N) ' O' 0)' 9//?' 63,%
M'53,)N' /7.'<(' E' 2 7:'))'/*'E'9 '@'H >'
$ ' &' #' Q IK' ,+/+,3'@)<+/+'))'/*' bH8+)'<((' JI'
(D/7'@(' > $ ' 8' ;' #H3 '))'/*'
E'9 '@(' 4Y I - #' #') ' QE K' 3(1+]J6(,]' O')'
+3-90+'/,' ?(18(.2(*)?' :4'8/,,)8+(/*' 3*?' (*1+,-8+(/*' 31'
:/41'3,)')?-83+)?"'))'/*' & '@@(((' '

#

C4

./1+2)1'+0)71)2<)1'31'6)22'31'+0)'7/1+')7(*)*+'7(*(1L
+),1'(*')<),4'39)' 60/'03<)')<(?)*+24':))*'8/77(11(/*)?'
:4'O' /?'/-,' 3<(/-,' 3*?'+0)' /,?'$)1-1' 0,(1+N' 03<)'
03?'*/'/+0),' 9,/-*?' /5'0/.)' 31'+/'+0)'132<3+(/*' /5'+0)(,'
/6*'1/-21'+03*'603+'+0)4'./11)11)?'(*'8/77/*'6(+0'+0)(,'
7)3*)1+':,)+0,)*' *'1/7)',)1.)8+1'+0)4'03<)'*))?)?'3*?'
O'?/*))?'9,38)' 7),84'3*?'.)38)' 5,/7' /?'+0)' 3+0),'
M'3*?'/-,' /,?'$)1-1N'7/,)'+03*'/+0),1'?/B'+0)(,')7.+3L
+(/*1' +,(321' 3*?' ?(55(8-2+()1' :)(*9' 9,)3+), ' 03<(*9' +0)'
137)')<(2'*3+-,)'6(+0'/+0),'7)*' 3*?'*/'7/,)'6(1?/7'/,'
1+,)*9+0'F' (*'+0)71)2<)1'+03*'+0)4B' 3*?')<)*'+0)(,'7/1+'
53(+05-2'3*?'-1)5-2'1),<(8)1'*))?(*9'7),84'(*'/,?),'+/'+0)'
388).+3*8)'/5'+0)7' 31' 6)22' 31'9,38)' 3*?'1-55(8()*84'+/'
.),5/,7'+0)7' ' ' (' FB') ' 0/6)<),' 60/'
3../(*+)?'+0)7' 031'3263411:))*',)3?4'+/'-./2?'3*?'0)2.'
+0)7' 3*?'0(1'1+,)*9+0'(1'.),5)8+)?'(*' +0)(,'6)3;*)11'
'E'9 '@((' F> K> +'(1'321/' /5'+0)' 9,)3+)1+'(7L
./,+3*8)'5/,' +0/1)' +/' 60/7'1-80'1),<(8)1' :)2/*9' +/'
803,9)'6(+0'322'1/2)7*(+4'3*?'3-+0/,(+4'8-,(/-1'3*?'8/*L
8)(+)?'.),1/*1' +/'M'.,)380'*/' /+0),'?/8+,(*)N'+03*' +03+'
/5'+0)'18,(.+-,)18'5/,' 3+3*' 73;)1'(77)*1)' -1)' /5'5321)'
+)380),1' +/'1/6'+3,)1'(*' +0)' /,?'1'5()2?' +/' 7-2+(.24'04L
./8,(+)1' +/' ?)8)(<)' 1/-21' +/' ?(1+-,:' +0)' .)38)' /5'+0)'
80-,80' +/')@8(+)'C-)1+(/*1'3*?'8/*+)*+(/*1' 3*?'(*'10/,+'
+/')*939)'7)*'(*'3*4'+0(*9'60(80'734'+3;)'+0)7'/55'5,/7'
V'9/?24')?(54(*9'60(80'(1'(*'53(+0N

B' WC

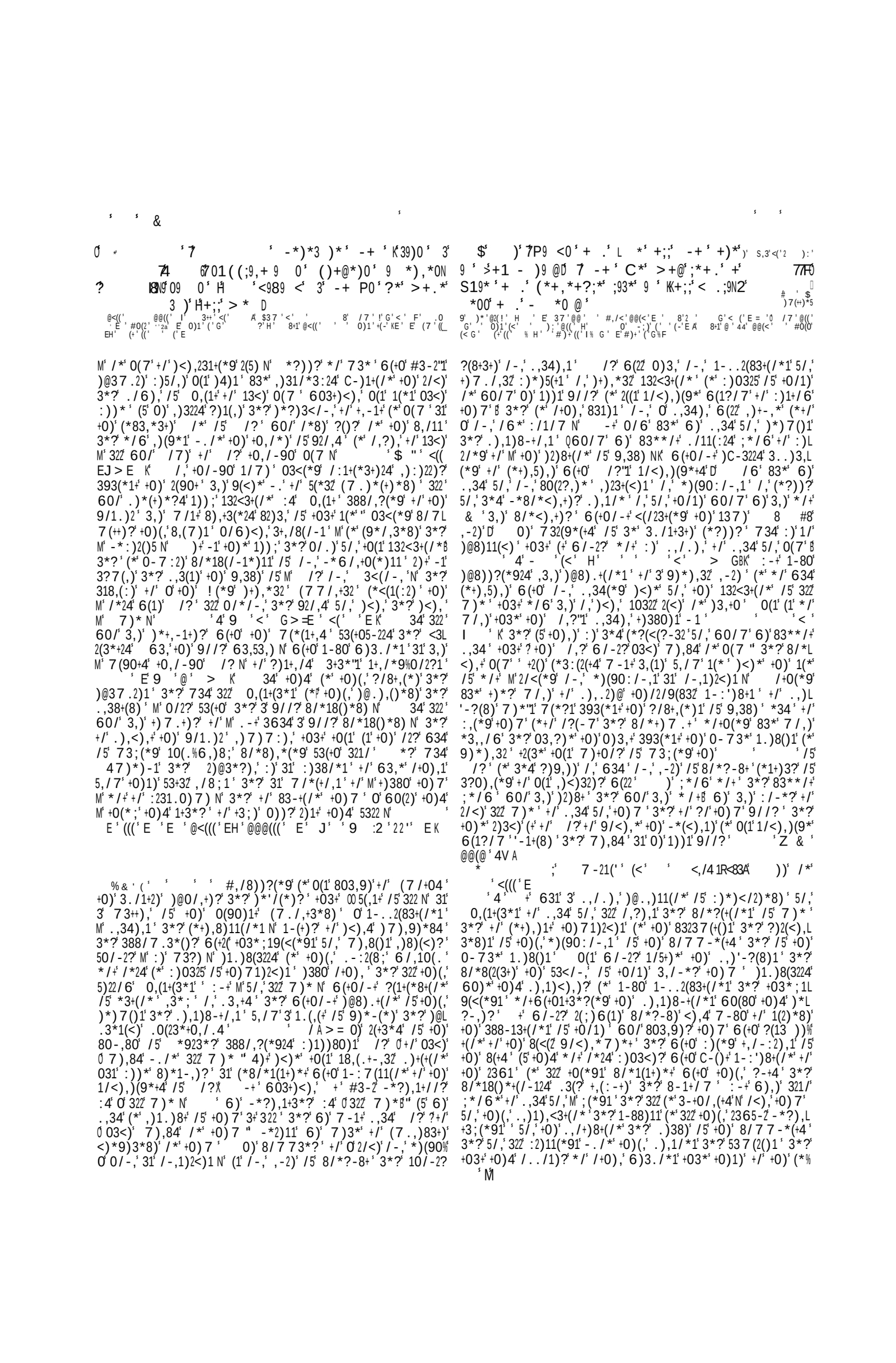
0)'?)1(9*'/5'+0)'9/1.)2'(1'*/+'3*16),)?':4'1.)8-23+(/*'
3*?'1/2<(*9'3:1+,38+' C-)1+(/*1' /,'00'9(<(*9'0))?'+/'53:2)1'
M 3*?')*??)11N'?(1.-+3+(/*' :-' 60)*' 1(**),1' +0,/-90'
M',).)*+3*8)'+/63,?1' /?'3*?'53(+0'+/63,?1' 0,(1+'$)1-1N'
3,)':,/-90+'+/'+0)'03:(+-32')@),8(1)'/5'0/24'M'2/<)'/-+'/5'
M'3'.-,)'0)3,+'3' 9//?'8/*18()*8)'3*?'53(+0'-*5)(9*)?N'
> 22' ?/8+,(*)1' 138,37)*+1'3*?'5/,71'3,)'-1+'1/'53,'
:)*)5(8(32'+/'-1'31'+0)4'3,)'-1)5-2(*'.,/?-8(*9'+0(1')55)8+'
(*'/-,'0)3,+1'3*?'2(<)18'3*?'322'+03+'53(+0'(1')3?'60(80'
Y?/)1'*/+'+0-1'(*52-)*8)'7)*'+/'2/<)' /?'3*?')380'+0),'
(*'3'.,38+(832'3*?'0/24'73**),' -+'3231X'(*'0/6'73*4'
6341'?/'7)*'16),<)'5,/7'+0(1'.23(*'3*?'1(7.2)'1+3+)7)*+'
/5'+0)' +,-+0'3*?'O'+-,*' 31(?)' -*+/=' <3(*' '3*92(*9XN'
3*4'8322)?' 0,(1+(3*' 7(*(1+),1'O'?)1(,)'+/' :)' +)380),1'
V'/5'+0)'236' ;*/6(*9'*)(+0),'603+'+0)4'134'*/,'60),)/5'
M'+0)4'355(,7'N'3*?'+0-1'3'5)6'5,397)*+1'/5'7C,32(+4'3,)

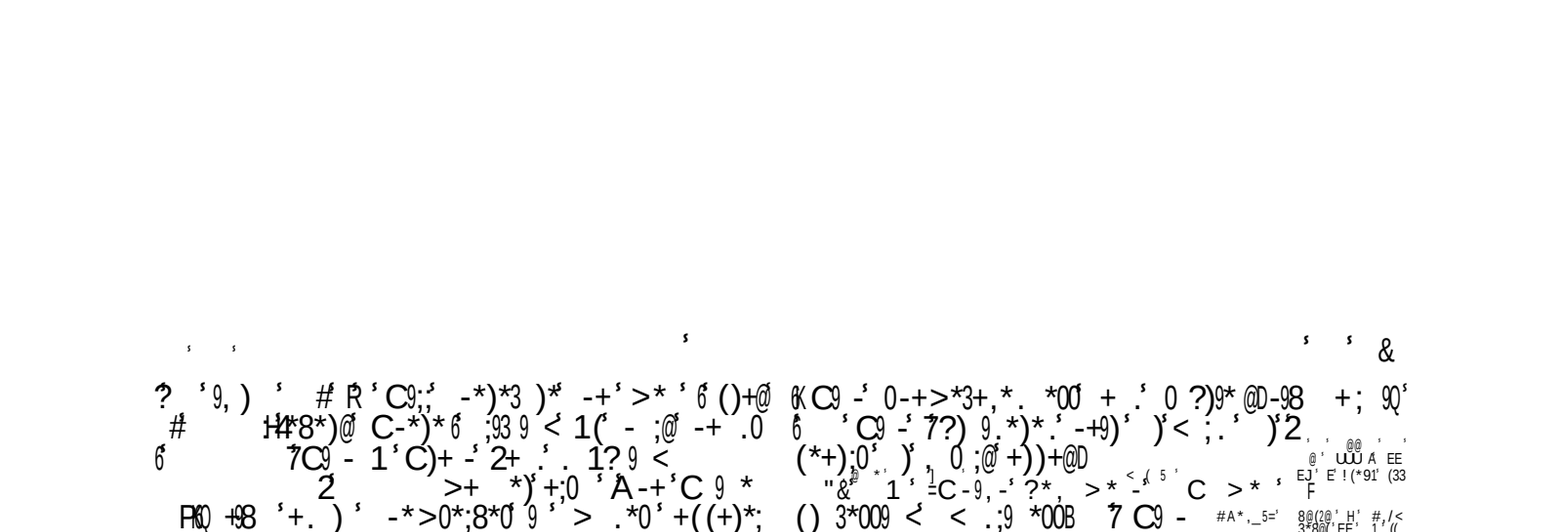
1-:1+(+-+)?'(*'+0)'.238)'/5'+0)'0/24'236'3*?'+0)':2)11)?'
M'9/1.)2'/5' /?'/-,' 3<(/-,X'N' +0),1';*/6'*/+' /,'38%Y
;*/62)?9)'*/+'+03+'+0)'M'236'(1'9//?'60)*'-1)?'236%
M'5-224'N'3*?'+0)4'?)823(7'(*'1/'9)*),32'3'73**),'393(*1+'
+0)'236'3*?'9//?'6/,;1'+03+'73*4'8/*82-?)=+0)'8/7L
73*?7)*+1'/5' /?'+/':)'<(2',</(?'/5'/:2(93+(/*'(*'
+0)71)2<)1',/'/5'3-+0/,(+4'31'+0)',-2)'/5'3':)2()<),"1'8/*L
?-8+X>=-+,-)'0,(1+(3*1'?),(<)'9,)3+':)*)5(+5,/7'+0)'
0/24'236'3*?'*/*)'03<)'3*4'+0(*9'+/'5)3,'5,/7'(+':-+'
M'+0)'2362)11'3*?'?(1/:)?()*+':+0)'-*9/?24'3*?'.,/53*)N'
)'03<)'322'(*?))?'?)1),<)?'8/*?)7*3+(/*B'M'+0),)'(1'
M*/*)',(90+)/-1'*/'*/+'/*)N')@8).+'31'73?)'1/':4'
53(+0'(*' 0,(1+'3*?'+0,/-90'0(1'9,38)'3*?'<)*'+0/1)'
60/'.3,+3;)'/5'+0(1':2)11(*9'5322'53,'10/,+'/5'+03+'.),5)8+'
2/<)'3*?'/:)?()*8)'60(80'+0)'236'?)73*?1>=+(1'322/6)?'
+03+'5)6'(*'8/7.3,(1/*'03<)':))*'9-(2+4'/5'38+-32'7-,?),'
.3,,(8(?)'7)*'1+)32(*9'/,'.),'-,4'+03+'73*4'3,)'5,)'
5,/7'+0)'9-(2+'/5'3?-2+),4'3*?'/+0),'1+(22':31),'.,38+(8)1'
3*?')<)*'/5'5/,*(83+(/*')+'+0)'137)'8/,,-.+'*3+-,)'(1'(*'
-1'322B'3*?'/-,')*7(+4'393(*1+'/?'3*?'(*9,3+(+-?)'+/'
0(7'/-,'?(1./1(+(/*'+/'?(1/:)4'3*?'?)1.(1)'.3,)*+32'3-L
+0/,(+4'+/'03+)'3*?'C-3,,)2'6(+0'/-,'*)(90:/-,1'+/'
.2)31'/-,1)2<)1',)93,?2)11'/5'+0)(,'9//?'3*?'+0)'92/,4'/5'
/?'3*?'3'<3,()+4'/5'./22-+)?'+0/-9((+1'3*?'355)8+(/*1'
24(*9'3*?'/+0),'<3(*'6/,?1'3*?'<),4'73*4'/+0),'+0(*91'
M'8/*+,3,4'+/'1/-*?'?/8+,(*)N'6/-2?')@./1)'-1'+/'+0)'
6,3+0'/5'/?'3*?'-1+(54'0(7'(*'/-,'5(*32'8/*?)7*3+(/*'
2)11'+0),)5/,)'6),)'3,)'M'73?)',(90+)/-1':4'53(+0'('
M'0,(1+N'3*?'+,-24',).)*+'3*?'5/,13;)')<),4'1(*'6)'3,)'
4)'M'-*?),'+0)'8-,1)'/5'+0)'236N')<)*'M'388/,?(*9'+/'
M'+0)'9/1.)2'/5'+0)':2)11)?' /?N'.,)380)?':4'+'#3-2'
3*?'3'+0)'137)'+(7)'6)'3,)'-*7))+/'103,)'+0)'0/24'
5)2(8(+4'/5'0)3<)*

E>E

+'(1'.)8-2(3,24')*8/-,39(*9'+/',)8/22)8+'603'73**),'/5'
.),1/*1'03<)':))*'8/*<),+)?'.3,?/*)?'M'8/-*+)?'53(+0%
M'5-2'.-+'(*+/'+0)'7(*(1+,4N')7(*)*+24'C-32(5()?'5/,'+03+'
138,)?'1),<(8)'3*?'73?)'(*1+,-7)*+1'/5'9,)3+'9//?'+/'
73*;(*?')<),32'60/':)5/,)'6),)'M':231.0)7),1'.),%
V'1)8-+/,1'3*?'(*'-,(/-1N'03<)'(*' ?(55),)*+'6341':))*'
7/1'-1)5-224')7.2/4)?'/*')3,+0'3*?'3,)'*/6'6(+0'0/24'
#3-2'(*'0)3<)*'8)2):,3+(*9'+0)',(80'7),84'3*?'9,38)':4'
60(80'+0)4'6),)'73?)'.3,+3;),1'/5',).)*+3*8)'53(+0'3*?'
2/<)'3*?'+03+'.,)8(/-1':2//?':4'60(80'+0)4'6),)'6310)?'
5,/7'322'+0),(,1(*1' 0)1)'(*'+0),(,?34':3,)'6(+*)11'+/'
+03+'M'53(+05-2'134(*9N'60(80'6)'*/6'6/-22?')3,*)1+24'
,)8/77)*?'+/'-*(<),132'388).+3+(/*')<)*'M'+03+'$)1-1'
M'0,(1+'837)'(*+/'+0)'6/,2?'+/'13<)'1(**),1N' *?'(+'
32634'031':))*'9,)3+24')*8/-,39(*9'+/'+,)7:2(*9'.)*(L
+)*+1'60)*'+0)'.,)380),1'/5'+0(1',(80'9,38)'6),)'+0)7L
1)2<)1')<(?)*+'3*?'355)8+(*9'(22-1+,3+(/*1'/5'+0=,'/6*'
?/8+,(*)'M'80()5'1(**),1N'4)+.3,?/*)?'3*?'803*9)?'
1)*+'?)823,)'+/'/+0),1'+0)'2/*9%1-=====' 10/-2?'5)<('
0,(1+/'+0)7'R'31'3'.3++),*'+/'bAR

T2

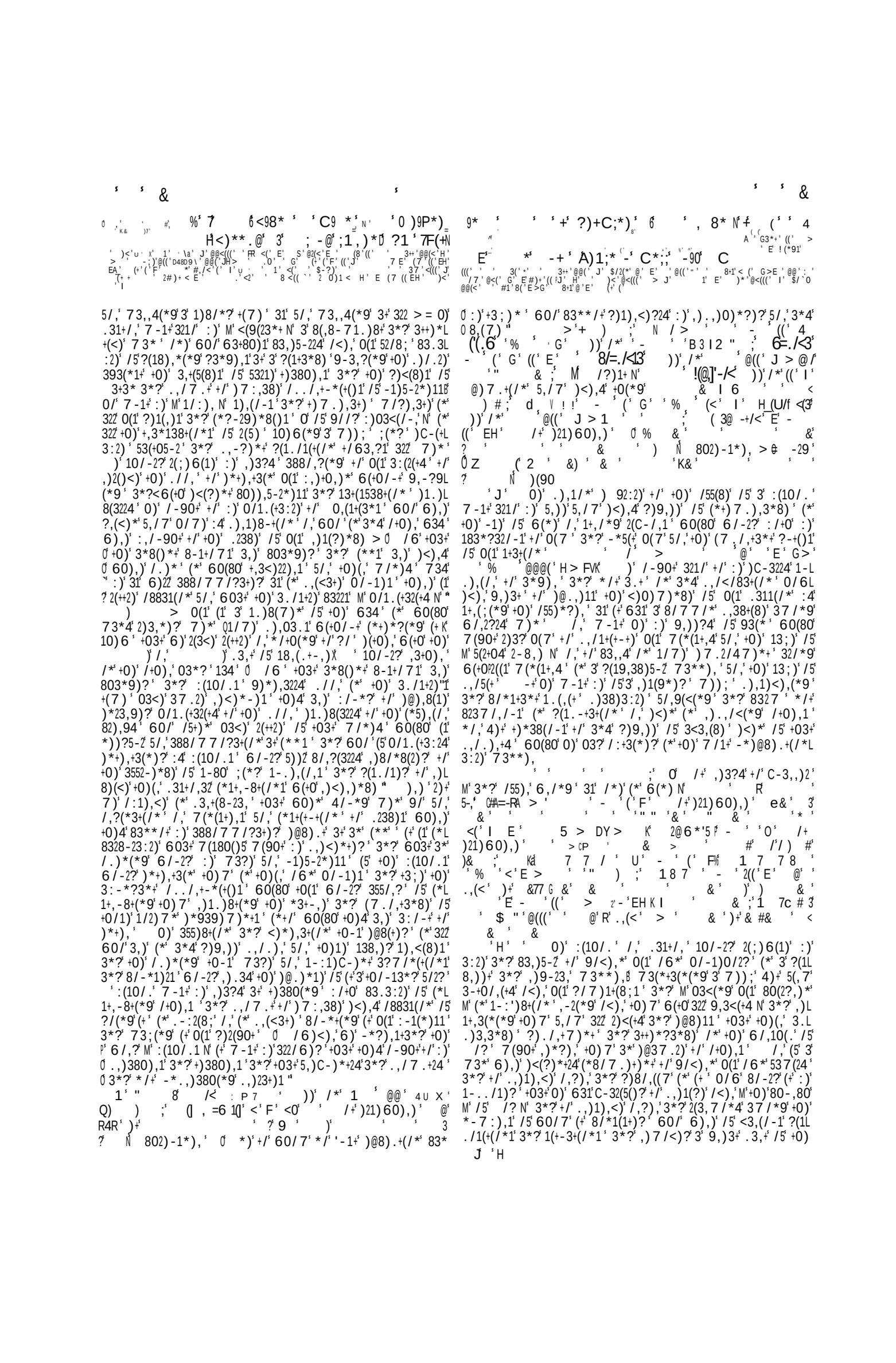


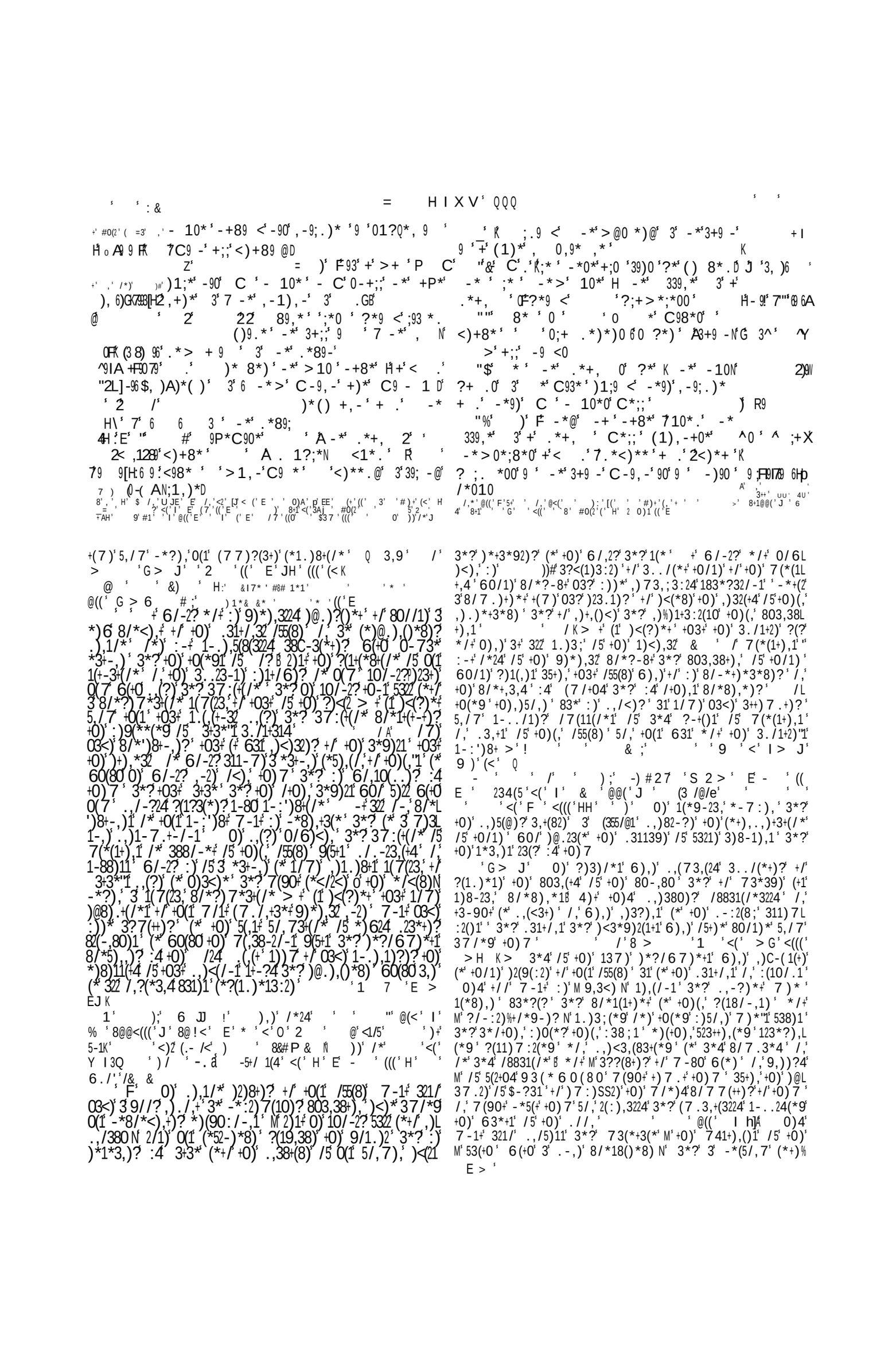


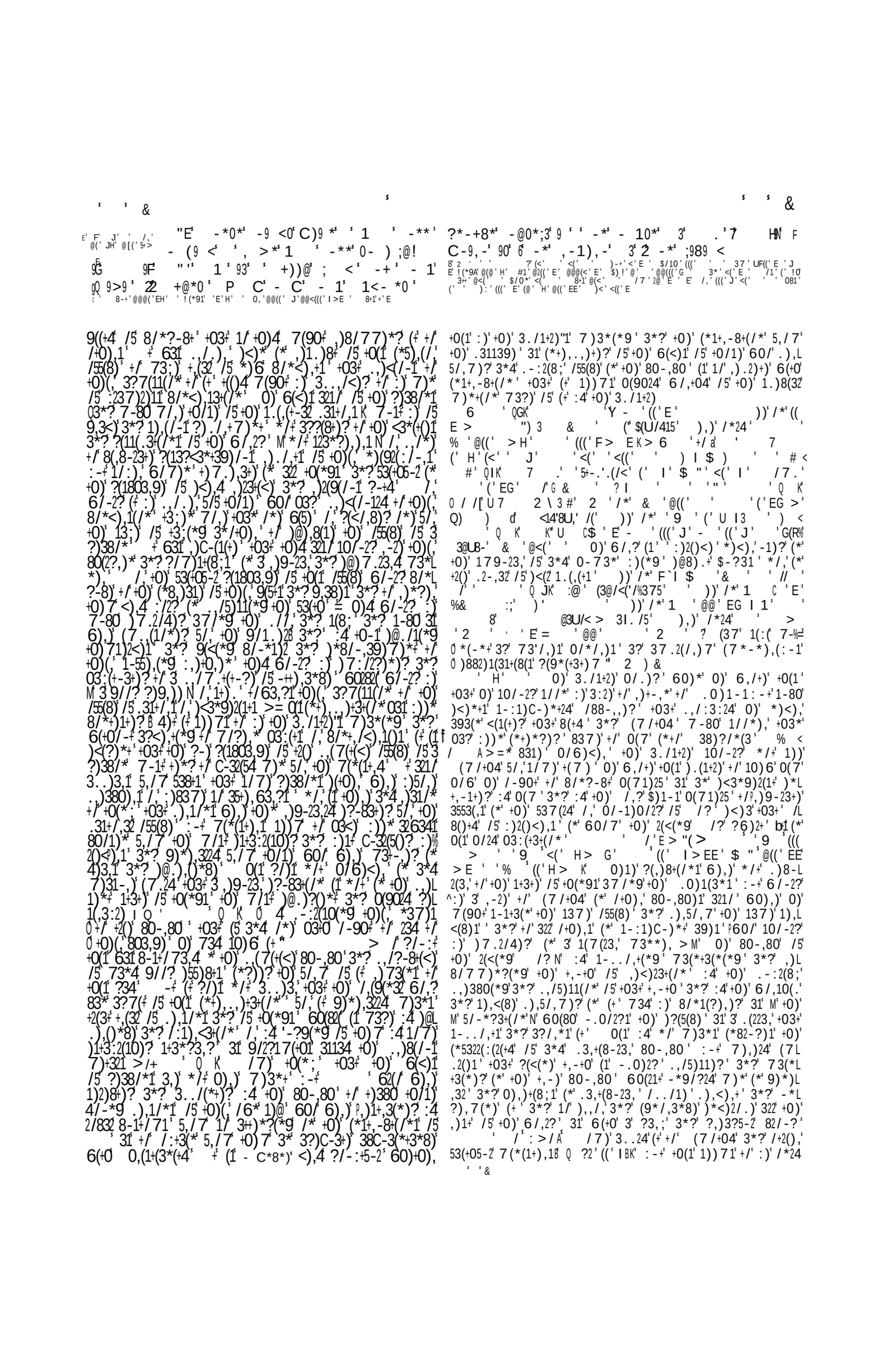
60(80 /? 0(71)25 3*?+0) 9,)3+)?(3+/, :)3,+/+0/1) (*:)0325/5 60/7 +0)1) 1- . .2(83+(/*1 10/-2?:) /(,)?* /?+/+ 60/7 +0)4 6),)+/ :) .,)1)*+)?* (1 +0) 0 *) M /? N +0) ,)3+/, /5 322 7)* 3*?+ M +0))?(3+/,N +0,/-90 60/7 +0)4 3,) .,)1)*+)?* (1 0 +0) 3* 0,(1+ M $)1-1 N -*(+)?+ 6(+0 -1 (*+0) :/*?+ /5 /*) 8/7 7/* *3+-,) M :/*) /5 /-, :/*) 3*?+ 52)10 N $ " ((H K M *) /? N (*+0(1 .31139) ?/)1 -/+ ?)*/+) +0) #),1/* /5 +0) 3+0),7)&)#+ :-+ +0))(+4 +0) 73*0//?+0),)5/,) /5 0,(1+ (*+),<)*)1 :)L +6))*+ 3 '-1+ 3*?+ 0/24 /?+ 3*?+ -1 1(**),1 :-+ +0(1 3*L 0//?+ (1)11)*+(3224 3*?+ (*1).3,3:24 -*(+)?+/+0) /?0)3?+ (*+0) #),1/* /5 +0) /* 60/+0-1 7)?(3+)1 :)+6))*+ /?+ 0(1 3+0), 3*?+ 7)* 0(1 :,)+0,)* > = 0(1 .,/<(1(/* 3*?+ 3../(*+7)*+ 031 :))*+ 73?)+ 3*?+ ,)<)32)?+ 5/,+0) 8/7 7/* :)*)5(+ /5 +0) 0-73*+,38) :/+0 $) 61 3*?+)*+(2)1 /5)<),4 *3+(/* +03+ 322 60/ 3,) 6(22(*9 734 8/7)(* +0(1 634 +/+0) 7),84%1)3+ /5 3 .3,?/*(*9 /?+/+ 1)) ; ,)8/*8(2(3L +(/*+/ 0(7 (((* * < %B J (< <((JF > J I @@((FMK 0(1)?(3+/, +0),)5/,) 93<) 0(71)25 M 3 ,3*1/7 5/, 322 N 31 +0) 37 : /5 /? M 60/+3;)+0 3634 +0) 1(*1 /5 +0) 6/,2? N +03+ :4 +0) 322%1-55(8()*+ 3+/*) 7)*+ /5 0(1 ?)3+0 -./*+0) 8,/11 3*?+0) ,)?) 7 .+(/* +0),) 73?) 3 5/-*?3+(/* 7(90+ :) 23(? 5/, +0) 0/.)1 /5 1(**),1 322 /<), +0))3,+0 3*?+ 03+ 322 60/ :)2()<) 7(90+ 38+-3224 :) 13<)?+ :4 (+ (EI ((EK > /*.(/-1 3*?+ 8/*1(?),3+) 73* 6(22 311),+ +03+ 0,(1+ 1/ 93<) 0(71)25 3 ,3*1/7 5/, 322 31 38+-3224 +/ +0) 132<3+(/* /5 322 +0/1) 60/ *)<),:)L 2()<) (* 0(7 3*?+ 03+ 0) +0-1 53(2)?+ /5 0(1 .-,./1) 3*?+ 1-55),)?+ (* <3(* *+2() /+0),03*?+ 0),) 3,) :-+ 5)6)<)* /5 +0/1) 60/ 2(7(+ 1-80)@.,)11(/*1 +/ ?1/7) /5 322 0 1/,+1 " 60/ ?/ */+ 322/6 +0) 322%1-55(8()*84 /5 0,(1+"1 3+/*) 7)*+ 3*?+ 3?7(+ +03+ 322 7)* 10/-2?:) (*<(+)?+ 3*?+ 8/7 73*?)?+/ :)2()<) (* 0(7 3*?+ 03+ 322 60/ ?/ :)2()<) 6(22 :) 13<)?:4 0(7 + (1 +0),)5/,)(7./,+3*+ 53, :)4/*?+0) (7./,+3*8) /5 ?? /-:+5-2 ?(1.-+3+(/*1 " +/ :1),<) 83,)L 5-224 +03+ */*) 6(22 :) 13<)?:4 +0) ,3*1/7 /5 0,(1+ 6(+0L /-+ +,-) 53(+0 +03+ +,-) 53(+0(1 M +0) 9(5+ /5 /? N 3*?+0))55)8+ /5 ,)9)*),3+(/* (> J J ((H > K +03+ M ;*/6*-*+/ /?+3,) 322 0(1 6/,;1 M 5,/7 :)5/,) +0) 5/-*?3+(/* /5 +0) 6/,2? N 3*?+ 03+ 322 6(22 8),+3(*24 :) 13<)?+ 60/ 6),) M 9(<)* -*+/ 0,(1+ N 3*?+ 60/7 0) 1.)8(3224 (*+)*?)?+/ 13<) 60)* 0) :)837) +0) -,)+4 /5 0(1 .)/.2) (<(J > H K 0)1) .,/./1(+(/*1 3,) 83.3:2) /5 82)3, 18,(.+-,32 .,//5 3*?+ 60)(+0)4 3,))1+3:2(10)?+ 6) 734 135)24 2)3<) 1-80)@L .,)11(/*1 31 +03+ 0),) -1)?+/ :)3, +0),(,7/1+ /:<(/-1 (7./,+ *?))?+ ?(<(*) 6(1?/7 3*?+ 2/<) 3,) .)8-2(3,24 10)6*+ (* +0(1 9)*),32 634 /5 1+3+(*9 +0) +,-+01 /5 0,(1+L (3*(+4 31 53,7/,) 1-(+3:2) +/)*C-(,),1 3*?+ -*)1+3:2(10)?+ .),1/*1 +03+ 3 141+)73+(832 3,,3*9)7)*+ 6/-2?:) > = 0(1 ,3*1/7 /5 +0) +89 1) + 9 < 138,(5(8) /*8) /55),)?

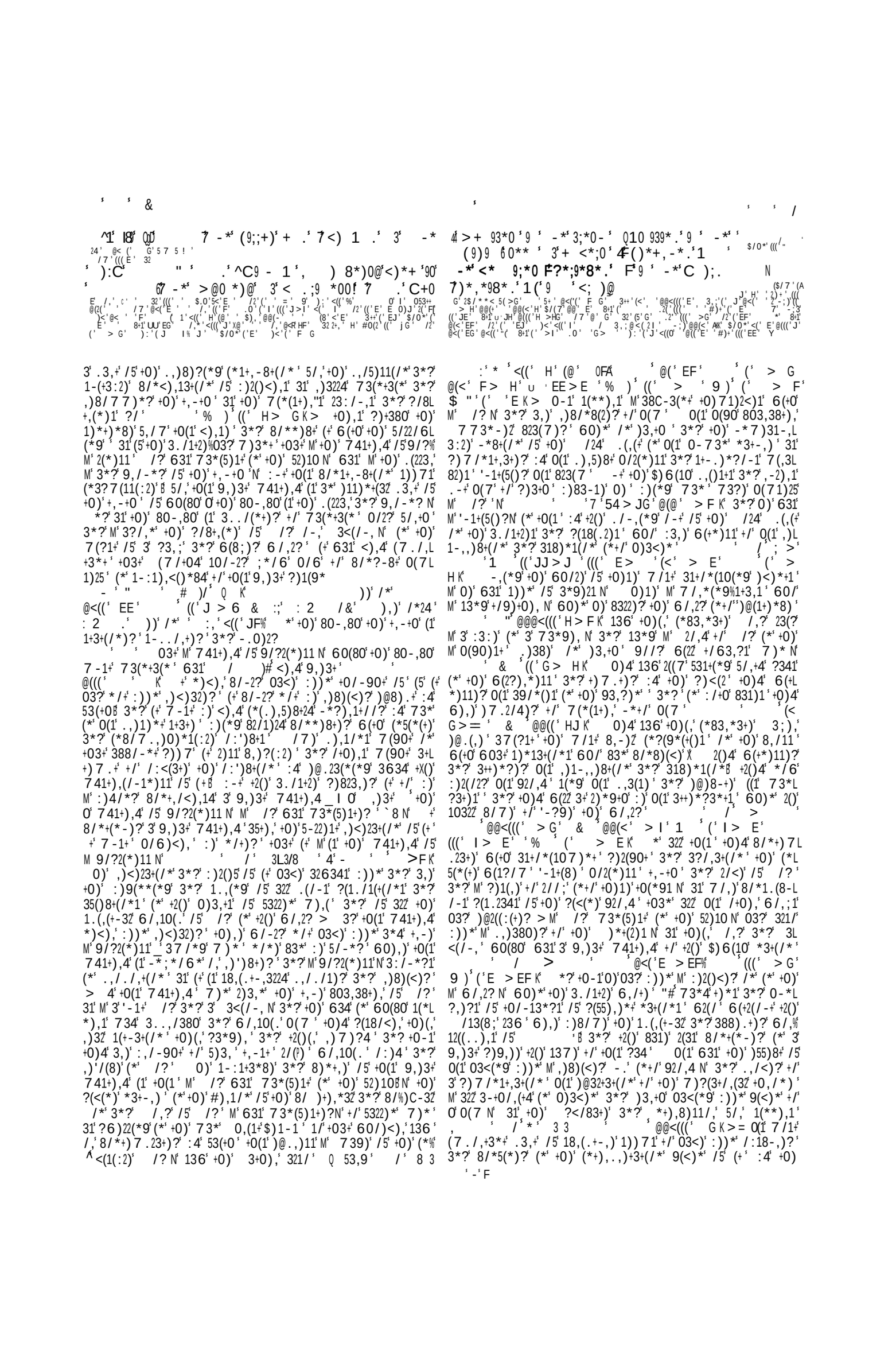
631 +/ :) 0 +)1+(5()?(* ?-) +(7) N +/ 322 7)* /5)<),4 *3+(/* (+ 631 +0),)5/,) (*8-7:)*+ -./*)<),4 0,(1+(3* +/ ./7/+) +0(1 9,)3+ ?)1(9* 388/,?(*9 +/ 0(1 /./,+-*(+4 3*?+ 3:(2(+4 3*?+ 0)*8) +0) /:2(93+(/* /5 1)*?(*9 3*?+ 1-.L ./,+(*9 7(11(/*1 +/)<),4 .3,+ /5 +0) 0)3+0)* 6/,2? 5 +0(1 9/1.)? +#3-2 631 /,?3(*)?+ M 3 .,)380),3*?+ 3* M 3./1+2) N 0(* 311),+(*9 60(80 0) 1/2) 7*24 3..)32)?+/ 0,(1+ 60/ 03? 3../(*+)?+ 0(7 31 0(1 0)3,+%1)3,80(*9 $-?9) 5/,+0) @38+,-+0 /5 603 0) 03?+ 3?<3*8)?BK 1/ +03+ 0) 631 */6) 7.2/4)?+ 31 0 3 +)380),/5 +0))*+(2)1 N)1.)8(3224 (* +0) ?/8+,(*)1 3*?+ ./,7(1)1 /5 +0) 9/1.)2 (* +0) *3+-,) /5 53(+0 3*?+ (* +0) 53(+05-2*)11 /5 /?+/ 322 0(1?)823,3+(/*1 3*?+ 8/<)*3*+%)*939)7)*+1 3*?+ (*)<),4 .3,+ /5 0(1 +,-+0 3*?+ 6(22 Q K 1b* (5))/* 6) (I I 1 Q K < (U- ./<),)/*24 @ ! +)+ = ?+ & ?K&) K&) & N 802)-1*), I 1) & ', /U +6 UU EG @ H > 0 ,/+(-1 /:1),<)1 +03+ +0) 0.,)./1(+(/* + >)<)* (* 8/7./1(+(/* 32634 1 1(9*(5()1 0)(+0), / , & 1 +0),) 83* :)*/ 0 60)* 0,(1+ (1 13(?+/ 03<) 9(<)* M 0(71)25 0 M 5/, -1 N > - (+ 7-1+ *)8)113,(24 1(9*(54 & 3 ? / , 0)*6) ,)3? /" > 3 0 3UJHG */ /*)?/-:+1 +0) 7)3*(*9 > 04 +0),)5/,) 734 0 6) */+ 8/*82-?) +03+ 0,(1+ 631 8,-8(5()?(* /-, .238) 0 3*?+1+)3? 60)* 0) 13(?+03+ V 0) 837)+/ 9(<) 0(1 2(5) N 0 > >> # N 1 = - >)) 31 +/ R< (= @@ JI H E = @ EH 2 > - / & +(7) d /-& 7 %> 05 0) +)1+(7/.4 (* 0(1 /6* +(7)1 N 0)7./,) 3)/ 8/*1+(+-+/ "2) & > * 0 bS E=!))/ /* @< I 1 :d =# 2 4 - (A=E % ((7H &PP A))/* (((0)3,2? /*) 60/ 73;)1 .-:2(8;.,/823 73+(/* /5 .)38) /, 63, /, /5 +0) 388)11(/* /5 3..,(*8) +/ 3 +0,/*) = 0) 6/,?(1(*?)) ?+ -1)?5/,3.-:2(8;8,(), (* 7/,) /,?(*3,4 73++),1 G > 88/,?(*9 +/ +0) 3-+0/,(+4 <)1+)?(* 0(7 +0) 3./1+2))*'/(*)?+ 03+ 0,(1+(3*1 10/-2?M .,34)<),4 M 60),) N 388/,?(*9 +/ +0) ?(,)8+(/*1 3:/<) 9(<)* ? *8 Y 3 > > H K 0) @.,)11(/* 734 (*?)) ?(*82-?% .,34),1 (* +0) 82/1)+ (* +0) 537(24 3*?+ (* 1/8(32 7))+(*91 -+ +0) 803.+),) 1).8(3224 ,)23+)1 +/ +0) 73**), /5 8/,(% ?-8+(*9 .-:2(8;311)7:2()1 (* 603 .238) 1/)<),+0)1) 6),) 0)2?B 5/,M 0),)+6/ /,+0,))7),) 7)+ +9)+0), +0),) N 1341 /-, 3<(/-, Q 37 (* +0) 7(?1+ /5 4/-N 0 ? @<(((I E @@<(((I E E E @ EJ > E K 0 1+0) 3.1/+2) (1 1.)3;(*9 /5 .-:2(8;.,34), 0(1 7)3*(*9 1-../1) (1 +03+ 0) 7)* 3*?+ */+ +0) 6/7)* 6),) +/ ?2)3?+0) ?)</+(/7/5+0) 311)7:24 QGK " ? !6 8 0) 3*+(+0)(1 :)+6))* +0) 7)* 3*?+ 0) 6/7)* QIK +0) 6/,?+ (+1)25 +0)3,+(82) 3*?+0) 8/**)@(/* M (*2(;) 73**), N 8/7L :(*) (*)1+3:2(10(*9 +0(1 /:1),<3+(/* > 0) 9)*+(2)1 03?+ .,()1+)11)1 31 6)22 31 .,()1+1 */+ /*24 +/ +0),9/??)11)1

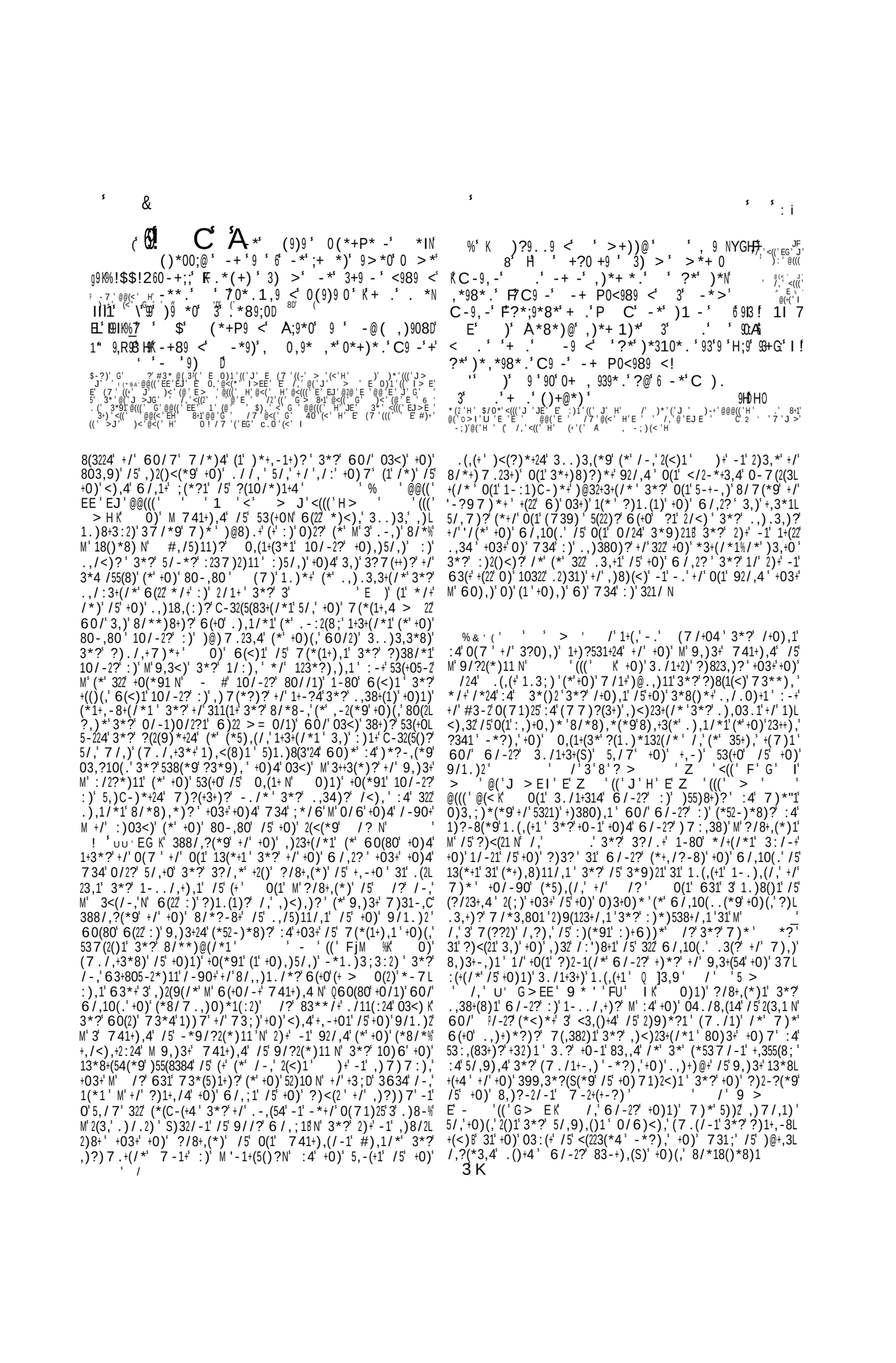
@ F

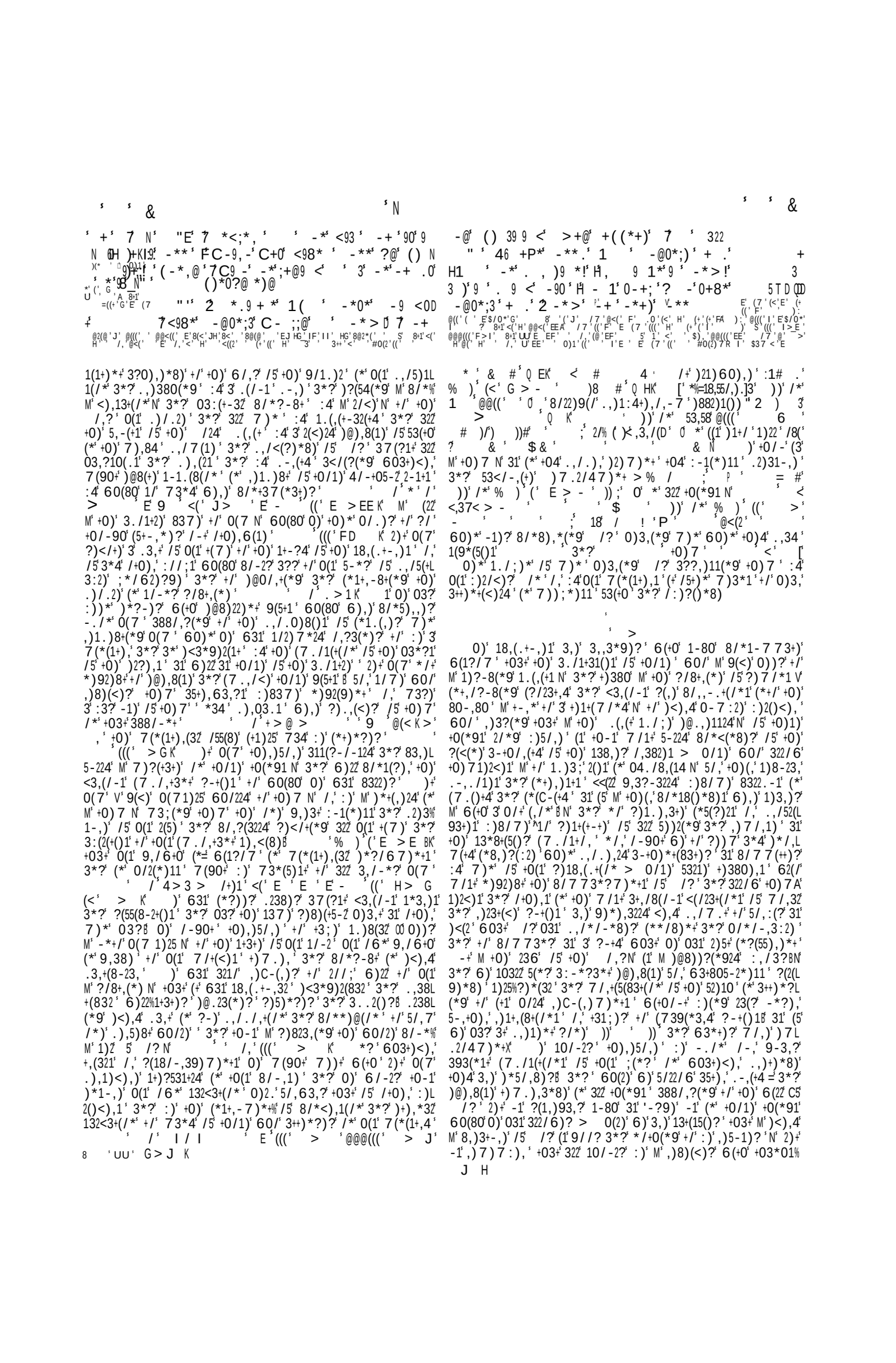


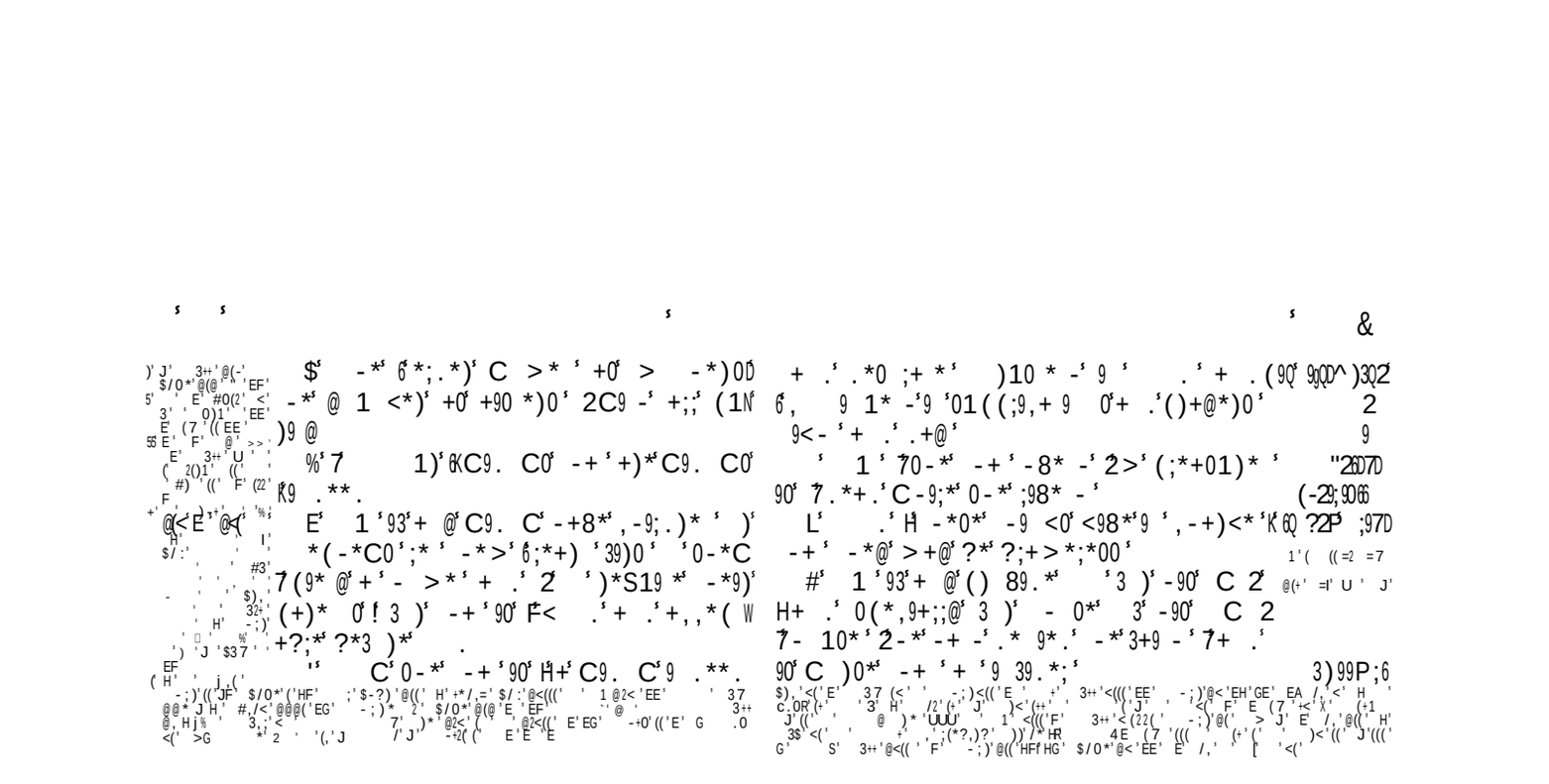


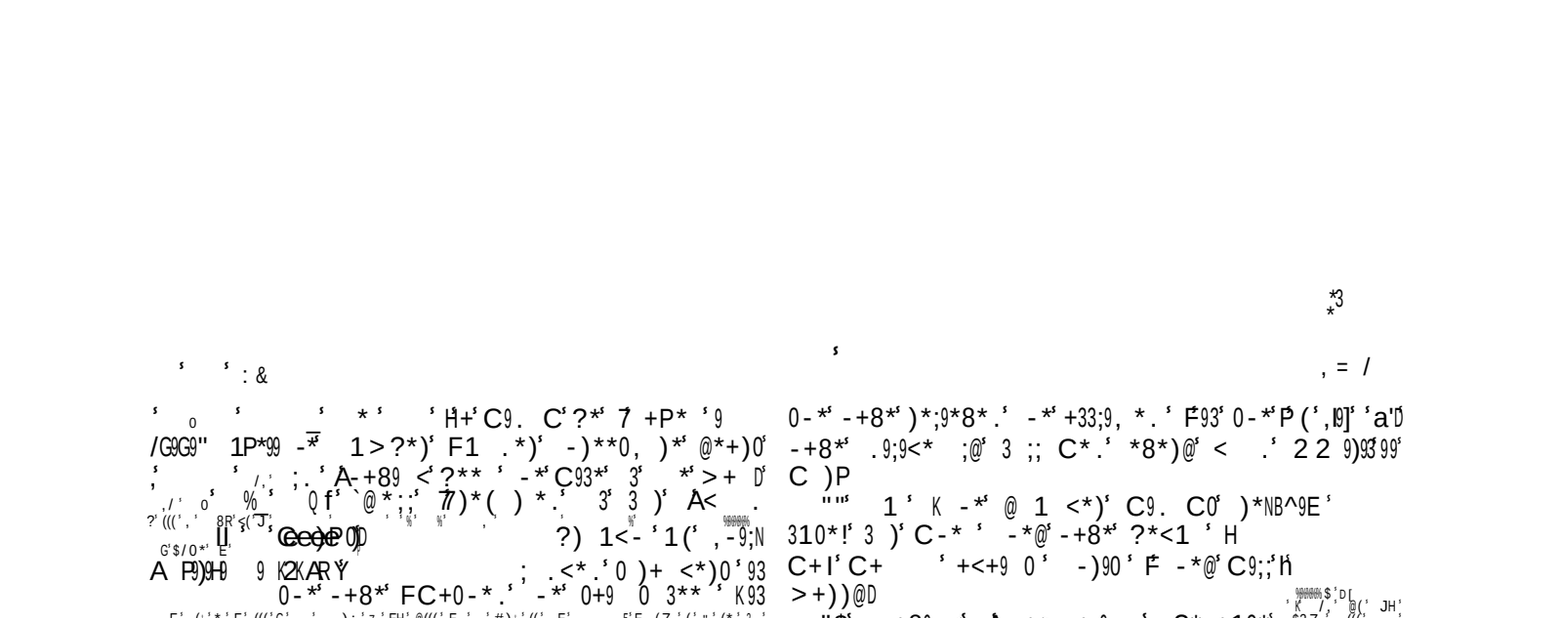








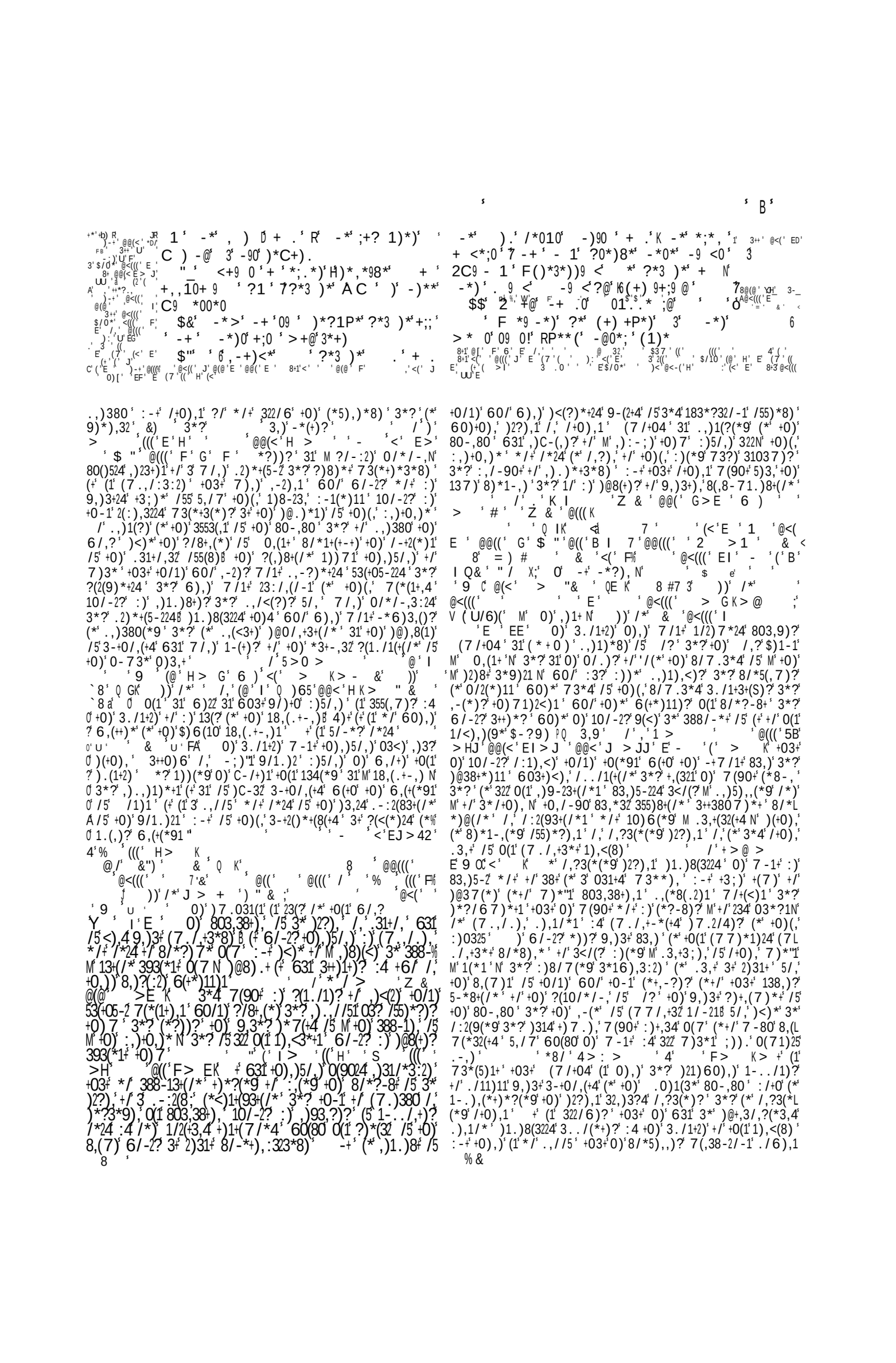


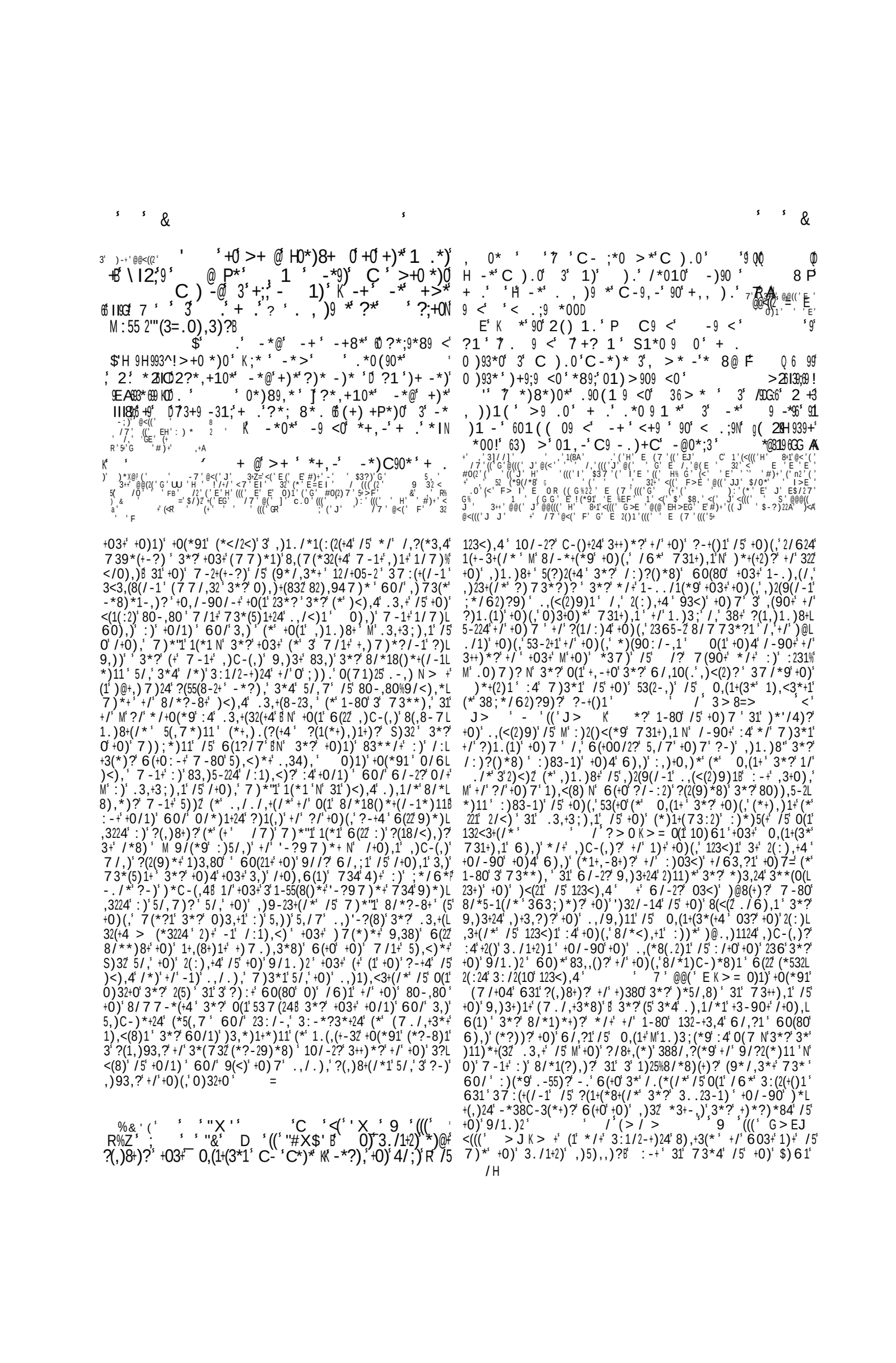


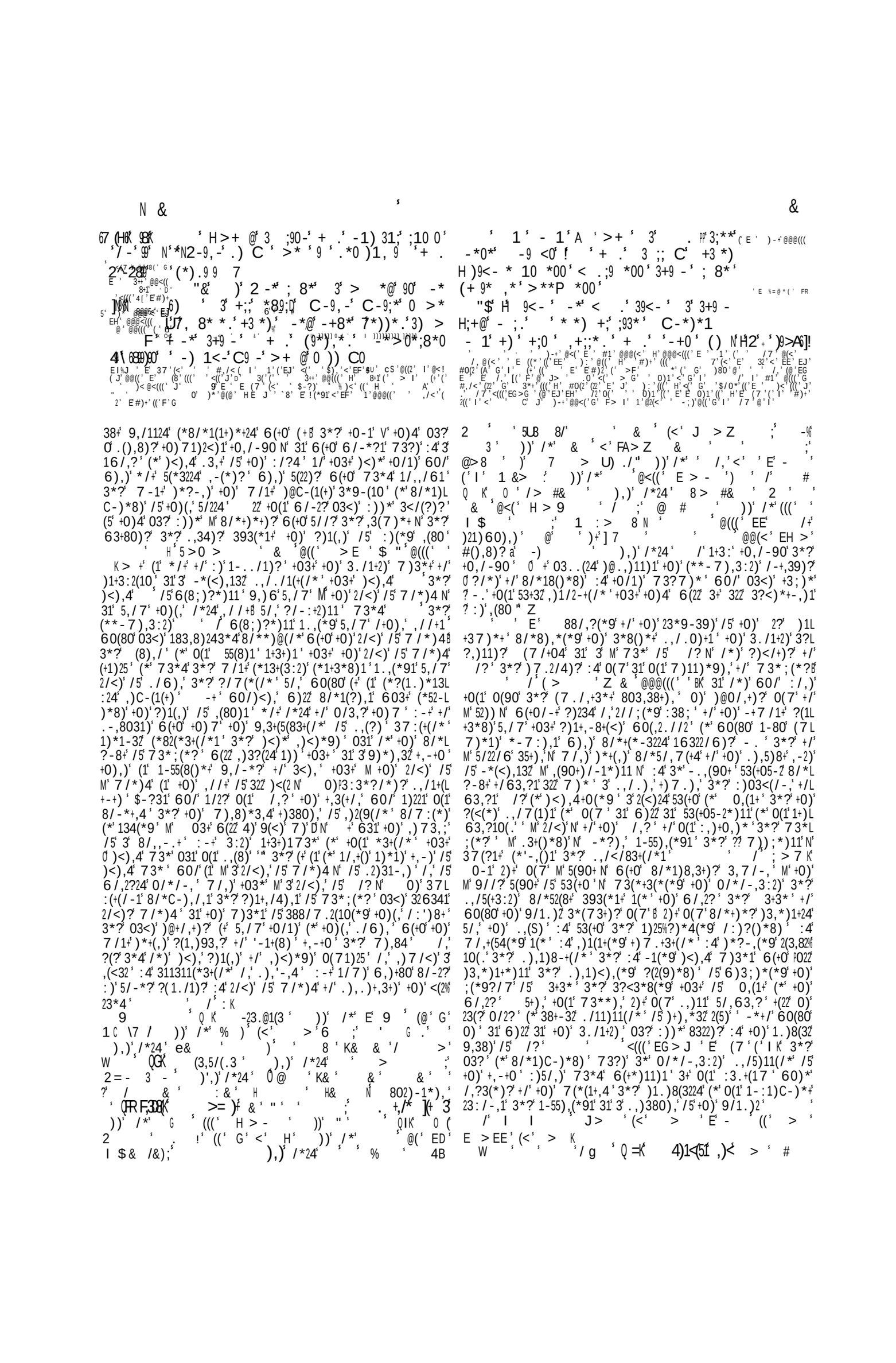
183*?32/-1<(8)1>=0)73**),(*60(80(73*48/<)+/-1.),1/*19,()</-124.),<),+0(1+)@+7-1+*/+.311-*L*/+(8)?*60(2)+0)4)<(?)*+24<(/23+)+0)?-+()1/5.()+4)C-(+43*?803,(+431626231+03+/5.,/<(?(*95/,*0)(,(*?(9)*+,)23+(/*1*4)360(2)+0)4:,(*9-.*+0)(,80(2?,)*3*?73(*+3(*+0)(,5376(2()1(*3736**),-++),24-*1-(+3:2)+/*+0)(,8(,8-71+3*8)15,/7)39),*)11+/3731 1,(80)1+0)4/5+)*C-/+)+0(1<),1)(*<(*?(83+(/*/5+0)(,1/,?(?3<3,(8)3*?(739(*)+03+0)3.//1+2)8/773*?)?7)*+/)9)8+32 /+0),?-+()1(*/,?),+/)*,(80+0)(,80(2L?,)*X Kj0#2)3?(*9+0)1)6/,?1+/'-1+(54/,?)@8-1)+0)(,1/,?(?.3,1(7/*43*?63*+/5803,(+80)60,)31+0)4.23(*24,)1.)8+0).,/<(1(/*60(80(2%?,)*10/-2?73;)5/,+0)(,.3,)*+1*3*?*/+03+60(80A.3,)*+10/-2?73;)5/,+0)(,80(2?,)*"!"#Q),0FK1>-)/*(((E>%0GK,)/*@((F>$:,M:(*%?)?N)/<&)/*6)<(,/(@/"/*H0e&/}),&H&N 802)-1*),*/8)1/9<('B7@@('G)/*UU

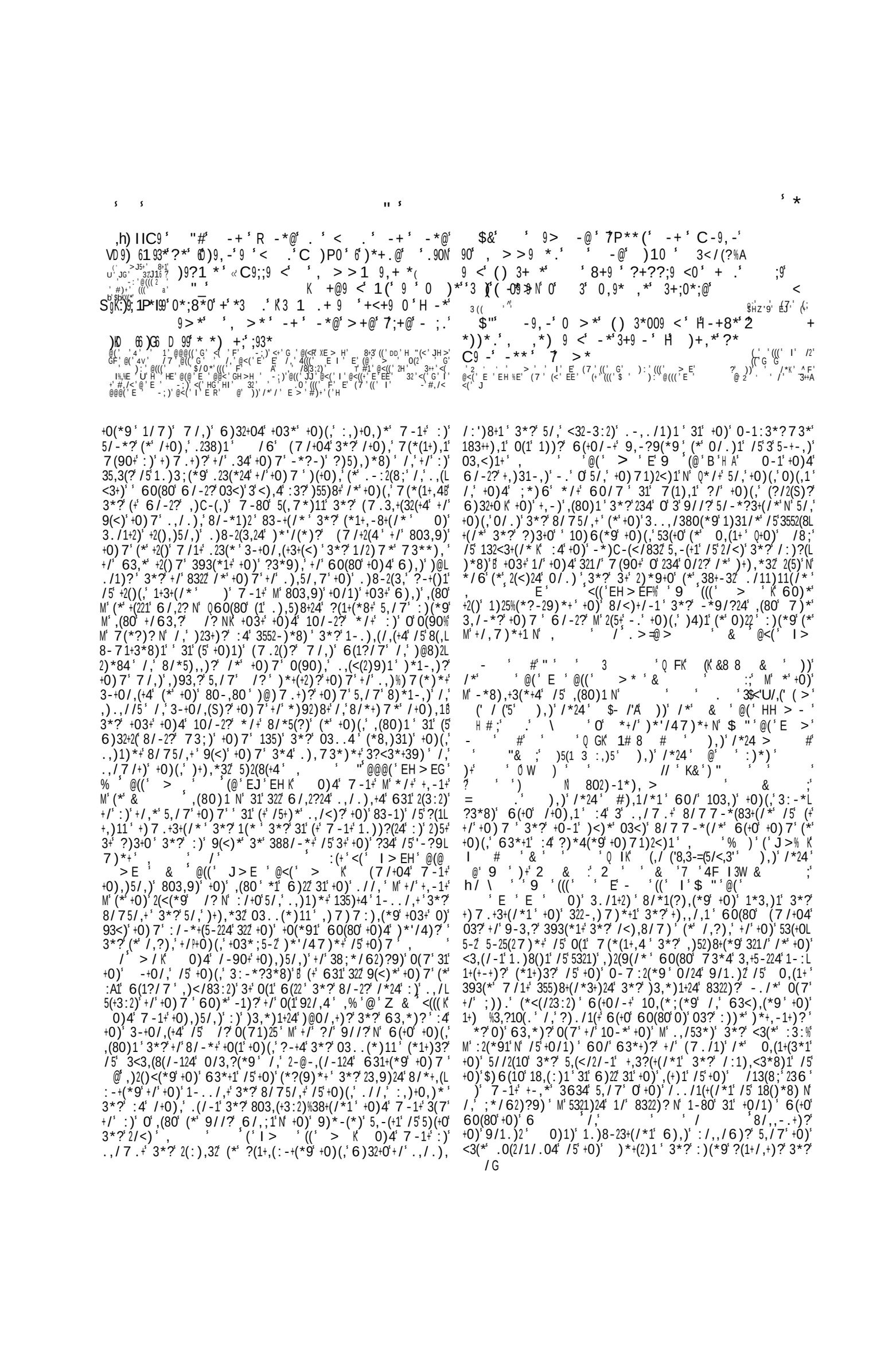
I>E0)3./1+2)8/-2?*/+0),)7)3*+03+*/6(?/61 6),)+/:)4:+0)80-,80 60/6),)-*?),1(@+4 4)3,1/5 39)B5/,+0)?(1+,)11)1/5 4/-*9),6(?/61 31 6)22 31/5/+0),./,/,),1/*17(90+0)<),4-,9)*+>)(1+0),)5/,)9)*),3224 1-../1)?+/1.)3,/5 3 8),+3(*-7:),/5 6(?/61 60/6),)?(1803,9)?5,/7 322 1)8-23,83,)1 3*?73(*+3(*)?:4+0)80-,80 /5 60/7 1-80 31 6),)3:2)3)+)?31 ?)38/*)11)1+/<(1(+1(8;3*?./,/,6/7)*3*?+/3?7(*(1+,-8+4/-*9 6/7)*3*?.),03.1 80(2?,)*/,+/3++)*?/*3*4/+0),8/*8),*1/5+0)80-,80 (+1 7(*(1+),1 3*?.(/-1 1+,3*9),1 60(80 234 6(+0(*+0)(,.,/<(*8)0/-90*/*(1 9(<)*5/,1-80 3*/,?),/5.),1/*1(*+0)80-,80 73*4+0(*91 /5+0(1;(*?1))7+/03<):))*2)5+?(18,)+(/*3,4 3*?+/:)?)+),7(*)?388/,?(*9+/8(,L8-71+3*8)1K4)+0)4 7(90+5,)C-)*+24:),-1)5-2(5.,/L.),24 1)2)8+)?3*?,)9-23+)?@<(E K*+0(1<()6+0).,/.,()+4/5+0),-2)0),)9(<)*(1 3.,3,)*+1+0),3./1+2)8/-*1)21 M+0)4/-*9),6(?/61+/73,,4 N J>K(+83**/+:)(739(*)?+03+0)6/-2?)@L82-?)3*4 60)*9,/6*/2?5,/7+0)*-7:),0),)(*L+)*?)?(5/+0),6(1)C-32(5()?7),)24:)83-1)+0)4 03?5/22/6)?0(1 8/-*1)2 4 M+0)6(5)/5/*)73* N+0),)L5/,)+0)3./1+2)?(?*/+(*+)*?+/)@82-?)1-80 31 03?73,,()?3 1)8/*?+(7)60(80+0)18,(.+-,)*/60),)?(1L322/61/,3+322?(18/-*+)*3*8)1-+103 7)5-2 3*?31+/L*(10(*9(,,)9-23,(+()1(*+0(1,)1.)8+6),)8/77/*37/*9+0)0)3+0)*6/7)*+0)4 5,)C-)*+24 2)5+0)(,0-1L:3*?1+/2(<)6(+0/+0),7)*3*?+0)*1/7)+(7)1,)+-,*)?393(*+/+0)(,5/,7),0-1:3*?1-*@/5+)*)#

93<)+0)7'-1+83-1)+/?(</8)+0)7/*.-,./1)+03+0)4 7(90+3;)/+0),0-1:3*?1*34+0)4 1/7)+(7)1?(?603+631)C-(<32)*+/?(</8(*9+0)(,0-1:3*?1*/,6),)+0)1)+0(*91?))7)?183*?32/-1 3+2)31+/*(*+03+?)9,)) 60(80+0)4 6/-2?:)3+.,)1)*+(*8/-*+,()1.,/5)11(*9 0,(1+(3*(+4 5+0)*3*4 6/73*03?5/,7),24 8/*5/,7)?+/+0)1)8/,,-.+8-1+/71(+6/-2?*/+:)8/*1(1+)*+6(+0+0)8,)?(+5 0,(1+(3*(+4+/3?7(+0),(*+/+0(1 1)2)8+*-7:),/5?)</+)?6(?/61+0/-90*/+0),/:')8+(/*234393(*1+0),5/,(+7-1+)@82-1(<)24 8/*1(1+/5+0/1)60/03?2(<)?<(,+-/-124 3*?0/*/-,3:24(*+0)73,,()?1+3+)/:8>(((E K>/7)@./1(+/,1(*?))?+0(*;+03+0/1)60/03?73,,()?393(*35+),:)(*9?(L</,8)?6),)(*+)*?)?B:-+0),)(1*/+0)2)31+(*+(73L+(/*(*18,(.+-,)+03+0)?(</,8)?10/-2?:)(,)1+,3(*)?5,/7 73,,4(*9393(*)<)*(5'-1+24-.+3634 3*?1-,)24+0)*/+60)*-*'-1+24?(</,8)?>=0)6/7)*=0/6)<),1./;)*/5 7-1+321/:)1-80 31 03?3*)1+3:2(10)?803L,38+),5/,M9//?6/,;1N 1(*8)+0)4 6),)8/*<),+)?+/=0,(1+(3*(+4 0/1)6),)+/:).,)5),,)?60/03?803,(+L3:24)?-83+)?+0)80(2?,)*/5+0),(./,/,)23+(<)1/,*)(90L:/-,1/,60/03?53(+05-224?/*)+0),(?-+4+/63,21+0),(/6*80(2?,)*60/60)*(*7/,)./1.),/-1 8,8-7L1+3*8)1 03?0/1.(+3:24)*+),+3(*)?1+,3*9),1(*+0),(0/-1)1 60/03?6(22(*924 1+//.)?+/+0)/55(8)/5 6310L(*9+0)5))+/5+0)13(*+1 60)*6)3,()?6(+0+,3<)22(*9 6 @<(((J>G & <((HH> @(((>K 3*?60/03?5,/7 2/<)+/ 0,(1+,)3?(24,)2()<)?+0)3552(8+)?3*?2(9)*+24M 3++)*?)?+/)<),4 9//?6/,;N Q S,9/?>;>3*?#1 (@J > HJK(?/61/5+0(1 803,38+),60)*9,/6*/2?3*?2)5+?)1/L23+)6),)+0)../.),.),1/*15/,+0(1 1),<(8)>-+0)3./1+2)?(,)8+)?(7/+04+/,)')8+0)3.2(83+(/*/5M 4/-*9),6(?/61BN 5/,)@.),()*8)10)6)?+03+0)(,3</6)?.-,../1)/5*/7/,)*+),(*9(*+/+0)73,,()?1+3+)631*/+/:)?),)*+(7)60)7 3/1+3*8)1K4)+0)4 7(90+5,)C-)*+24:)-1)5-2(5../L.),24 1)2)8+)?3*?,)9-23+)?@<(E K*+0(1<()6+0)./,/,()+4/5+0),-2)0),)9(<)*(1 3.,3,)*+1+0),3./1+2)8/-*1)21 M+0)4/-*9),6(?/61+/73,,4 N J>K(+83**/+:)(739(*)?+03+0)6/-2?)@L82-?)3*4 60)*9,/6*/2?5,/7+0)*-7:),0),)(*L+)*?)?(5/+0),6(1)C-32(5()?7),)24:)83-1)+0)4 03?5/22/6)?0(1 8/-*1)2 4 M+0)6(5)/5/*)73* N+0),)L5/,)+0)3./1+2)?(?*/+(*+)*?+/)@82-?)1-80 31 03?73,,()?3 1)8/*?+(7)60(80+0)18,(.+-,)*/60),)?(1L322/61/,3+322?(18/-*+)*3*8)1-+103 7)5-2 3*?31+/L*(10(*9(,,)9-23,(+()1(*+0(1,)1.)8+6),)8/77/*37/*9+0)0)3+0)*6/7)*+0)4 5,)C-)*+24 2)5+0)(,0-1L:3*?1+/2(<)6(+0/+0),7)*3*?+0)*1/7)+(7)1,)+-,*)?393(*+/+0)(,5/,7),0-1:3*?1-*@/5+)*)#



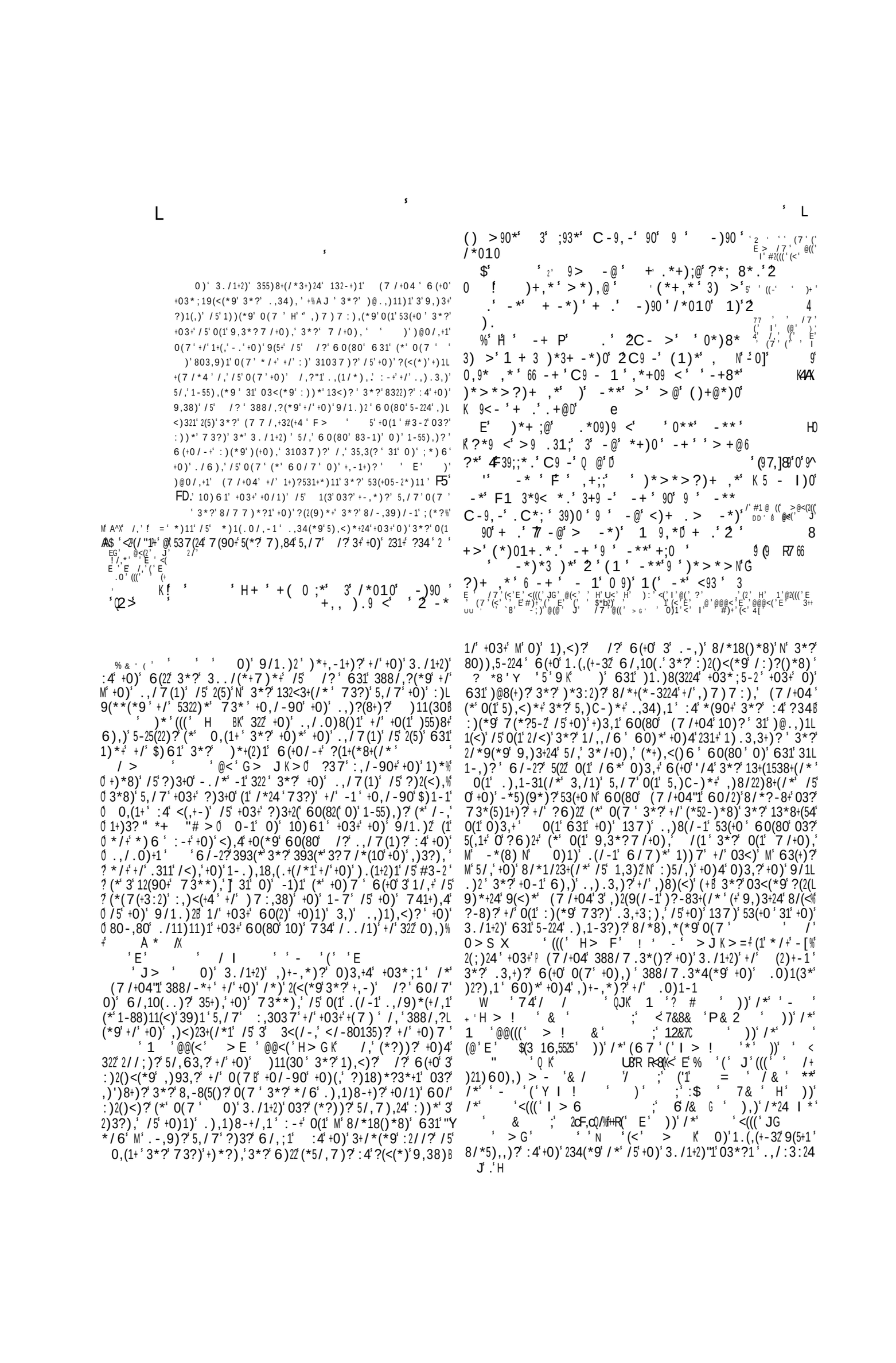


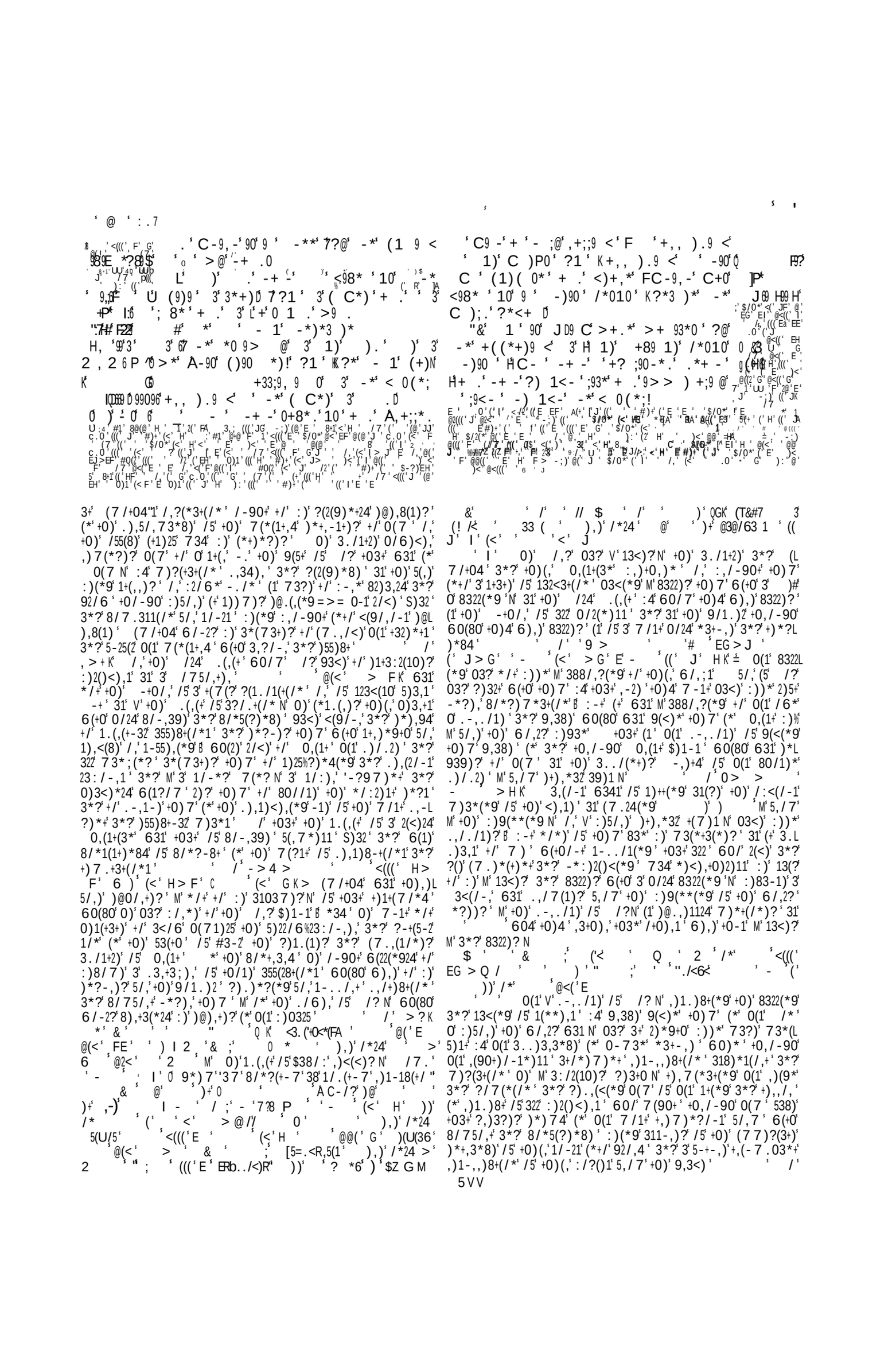




=’ +(’)’ " I ’’%2J’ "H %’J

& ’ 3./1+2)’ 631’)<(?)*+24’ 3’ .,(1/*),’ 3+’ /7)’ 60)*’ 0)’ 6,/+)’ +0(1’).(1+2)’ B :-+’ 1/7)’ 1-../1)’ +03+’ (+’ 631’ 6,(++)*’ ?-,(*9’ 0(1’ 5(,1+’ (7.,(1/*7)*+’ 31’ +0)’).(1+2)1’ +/’ +0)’ .0)1(3*1’ +0)’ #0(2(..(3*1’ +0)’ /2/11(3*1’ #0(2)7/*’ 3*?’ +0)’):,)61’ 6),)’ +0),1’ 0/6)<),’ 3,)’ /5’ /.(*(/*’ +03+’ (+’ 631’ 6,(++)*’ 60)*’ 0)’ 631’ (7.,(1/*)?’ 3’ 1)8/*?’ +(7)’ 3*?’ */+’ 2/*9’ :)5/,)’ 0)’ 1-55),)?’ 73,+4,?/7B 3*?’ +0(1’ 3..)3,1’ +/’ 7)’ :4’ 53,’ +0)’ 7/1+’ 13+(1538+/,4 > 0 0)’ 3*8()*+1’ 5,/7’ +0)1)’ ?’ 6/,?1 M’ ’ 37’ ,)3?4’ +/’ :)’ /55),)?’ 3*?’ +0)’ +(7)’ /5’ 74’ ?).3,+-,)’ (1’ 3+’ 03*? N’ Q(<’ K’ ?/’ 9)*),3224’ 8/*82-?)’ +03+’ +0(1’ ?’ 631’ +0)’ 231+’ /5’ #3-2’1’).(1+2)1’ *?’ +,-24’ +0)’ 6/,?1’ /5’ +0)’ 3./1+2) ’3,)’ */+’ 6)22’ 83.3:2)’ /5’ 3*4’ /+0),’ 1)*1)’ 5/,’ 0)’ 0’ 1341’)@.,)1124’ Q(<’ K’ ’ M’ ’ 37’ */6’ /55),)?’ 3*?’ +0)’ +(7)’ /5’ 74’ ?(11/2-+(/*’ (1’ (*1+3*+’ ’ 03<)’ 5(*(10)?’ 74’ 8/-,1)’ 0 M’ 3*?’ 0)*8)5/,+0’ +0),)’ (1’ 23(?’ -.’ 5/,’ 7)’ 3’ 8,/6*’ /5’ 92/,4N’ rGK’ 0),)31’ 0)’ */+’ /*24’)@.)8+)?’ +/’ :)’ ?)2(<),)?’ 5,/7’ 0 0(1’ 5(,1+’ :/*?1’ :-+’ 1341’)@.,)1124’ M’ ’ ;*/6’ +03+’ ’ 10322’ 3:(?)’ `8N’ %)’ (’ E ’ E ’ %) ’ EE’ $ " ’ @(((’ EJK’ ’ 0 *’ 0(1’ 5(,1+’ :/*?1’ 0)’ 631’ ’)" ’ & ’ M’ (*’ 0(1’ /6*’ 0(,)?’ 0/-1)’ ,)8)(<(*9’ 322’ +03+’ 837)’ +/’ 0(7’ */*)’ 5/,:(?% 0 M’ ?(*9’ 0(7 N’ ’ @@<(((’ J ’ J K’ M’ (1’ :/*?1’ 6),)’ ;*/6*’ (*’))13,"1’ .3238)’ 3*?+/’ 322’ /+0),1 N’ %)’ (’ JK>),)’ 0 0)’ (1’ ’ ’ & (1/’ +03+’ *)1(./,-1’ 631’ 5/,8)?’ +/’ 0’)*C-(,)’ 7/,)’ ?(2(9)*+24’ 35+),’ 0(7’ +03+’ 0)’ 7(90+’ 5(*?’ ? M 0(7’ /-+N’ Q(’ FK’ 93(*’ 0)’ 13(?’ :)5/,)’ M’ 3*4’ /5’ +0)’ :,)+0,)*’ (*’ +0)’ /,?’ :)(*9’)*)/-,39)?’ :4’ 74’ :/*?1’ 0 M 6),)’ :/2?’ +/’ 1.)3;’ +0)’ 6/,?’ 7C,)’ 3:-*?3*+24’ 6(+0/-+’ 5)3,N’ %)’ (’ HK’),)’ M 3(2’ 7)*’ 5/,13;)’ 0(7 N’ Q(<’ K" ! "# >= (7/+04’ 631’ 6(+0’ #3-2’ 60)*’ 0)’ 6,/+)’ +/’ +0)’ #0(2(..(3*1’ +/’ #0(2)7/*’ 3*?’ +/’ +0)’)L :,)61’ %)’ (’ ’ 9)’ (’ ’ %) ’ ’ $ " ’ @(((’ EJK’ 3,:’ 631’ 321/’ 6(+0’ 0(7’ 3*?’ ’/(*)?’ (*’ 132-+(*9’ +0)’ /2/1L 1(3*1’ :-+’ :/+0’ 6),)’ 3:1)*+’ 60)*’ +0(1’).(1+2)’ 631’ 6,(++)*’ Q(<’ K> 0/-2?’ (+’ :)’ 3,9-)?’ +03+’ +0)4’ 837)’ +/’ 0(7’ " / ’0)’ 6,/+)’ +0)’ /+0),’).(1+2)1’ 603+’ 83*’ :)’ 13(?’ 8/*8),*(*9’)731’ D /,’0)’ 631’ 6(+0’ +0)’ 3./1+2)’ 60)*’ 0)’ 6,/+)’ +/’ +0)’ /2/11(3*1’ :-+’ 037?’ 5/,13;)*’ 0(7’ 60)*’ 0)’ 6,/+)’ +0(1’).(1+2)’ Q(<’ 9)’ (<’ HK’ 0)’ 1-../1+(/*’ +03+’ (L 7/+04=’ 3*?’ 3,;’ 03?’ 8/7)’ +/’ +0)’ 3./1+2)’ :)5/,)’ 0)’ 6,/+)’ +0)’ /+0),’).(1+2)1’ (7.2()1’ +03+’ +0(1’ 631’ 6,(++)*’ 3’ 8/*1(?),L 3:2)’ +(7)’ " / ’ +0/1)B :-+’ +0)’ 311-7.+(/*’ +03+’)731’ 037?’ ,).)*+)?’ 3*?’ ,)+-,*)?’ +/’ +0)’ 3./1+2)’ 60)*’ 0)’ 6,/+)’ +/’ +0)’ /2/11(3*1’ (7.2()1’ +03+’ +0)’).(1+2)’ +/’ /2/11)’ 631’ 6,(++)*’ 1/7)’ +(7)’ / ’)+’ +0)1)’ 8/*+,3?(8+/,4’ 1-../1(+(/*1’ 7-1+’ :/+0’ :)’ 3?7(++)?’ +/’ 1-../,+’ +0)’ /.(*(/*’ +03+’ +0(1’).(1+2)’ 631’ 6,(++)*’ ?-,(*9’ +0)’ 3./1+2)"1’ 5(,1+’ (7.,(1/*7)*+’ *?))?’ +0)’ 23*9-39)’ -1)?’ (*’ (+’ (7.2()1’ +03+’ +0)’ 3./1+2)’ 8/*1(?),)?’ 0(71)25’ 31’ /*)’ 60/’ 037?’ 5(*(10)?’ 0(1’ 7(*(1+),(3Z’ 23:/-,1’ 3*?’ 35+),’ 3’ 1)<),)’ (7.,(1/*7)*+’ .),03.1’ 5/,’ 1/7)’ +(7)’ 2/*9),’ 631’ 3:/-+’ +/’ 82/1)’ 0(1’ +)1+(L 7/*4’ :4’ 73,+4,?/7’ ’ ’ ’ > G’ (<’ > G K> +’ (1’ 321/’ C-)1+(/*)?’ 60),)’ (7/+04’ 631’ 60)*’ +0)’ 3./1+2)’ 6,/+)’ +/’ 0(7’ +’ (1’ 9)*),3224’ +0/-90+’ +03+’ 0)’ ,)1(?)?’ 3+’ .0)1-1’ B 3*?’ (*?))?’ +0(1’ (1’ .,/:3:2)’ +0/-90’ */+’ 8),+3(*’ Q /7.3,)’ ((’ > G’ (<’ H’ 6(+0’ ’ -’ (’ E >))’ ’ (<’ I > J’ I > EE K> +’ 631’)<(?)*+24’ +0)’ 18/.)’ /5’ +0)’).(1+2)’ +/’ 3*(73+)’ (7/+04’ +/’)*?-,)’ .),1)8-+(/*1’ 6(+0’ 8/-,39)’ 3*?’ 8/*1+3*84B +/’ 83-+(/*’ 0(7’ 3*?’ +0),1’ 393(*1+’ 5321)’ +)380),1’ 3*?’ 8/,,-.’ .,/5)11/,1’ /5’ 0,(1+(3*(+4’ +0)’ (*8,)31)’ /5’ 60/7’ +0)’ 3./1+2)’ .,)?(8+)?’ (*’ 7/1+’)*),9)+(832’ 23*9-39)’ ’ 3*?’ +/’ ?(,)8+’ 3*?’ 3*(73+)’ 0(7’ (*’ 5-25(22(*9’ 0(1’ 7(*(1+,4’ 3*?’ (*’ 5/22/6(*9’ 35+),’ 0/2(*)11 > 0 0)’ 3./1+2)’ 03?’ 0 :))*’ 5/,’ 1/7)’ +(7)’ -*?),’ 82/1)’ 8/*5(*)7)*+’ 3+’ /7)’ 3+’ +0)’ 7),84’ /5’ 3’ 8,-)2’ 3*?’ 83.,(8(/-1’ +4,3*+’)’ 03?’ 1))*’ 0 0(71)25’ ?)1),+)?’ :4’ 0(1’ 5,()*?1’ (*’ 0(1’ 9,)3+)1+’)@+,)7(+4’ 3*?’ 03?’ */+0(*9’ :)5/,)’ 0(7’ :-+’ +0)’ 8),+3(*’ .,/1.)8+’ /5’ ?:)(*9’ 8322)?’ +/’ 1-55),’ ?)3+0’ (*’ +0)’ 137)’ 83-1)’ +/’ 60(80’ 0)’ 03?’ ?)</+)?’ 0(1’ 2(5)’ *’ +0(1’ 1(+-3+(/*’ 0/6’ ?/)1’ 0)’ :)03<)’ D /)1’ 0)’ 1))7’ +/’ 2//;’ :38;’ 6(+0’ 8/*8),*’ /*’ 0(1’ .31+’ 8/*?-8+’ /,’ +/’ ,)9,)+’ +0)’ 138,(5(8)’ 0)’ 03?’ 73?)’ /5’ 0 0(1’ 6/,2?24’ (*+),)1+1’ D ^ 3*’ 6)’ ?(18/<),’ 3*4’ +0(*9’ +03+’ :)+,341’ 3’ 1)8,)+’ 8/*18(/-1*)11’ /5’ 9-(2+’ /,’)<)*’ 3’ 1-1.(8(/*’ 0 /5’ +0)’ ’ /5’ 0(1’ 83-1)’ D 34’ ?/)1’ 0)’ ?,/.’ 3’ 1(*92)’)@.,)11(/*’ +03+’ 83*’ :)’ (*+),.,)+)?’ 31’ +0)’ 73,;’ /5’ 5)3,’ P /,’ ?(18/7./1-,)’ /5’ 7(*?’ (*’ +0)’ 3..,)0)*1(/*’ /5’ +0/1)’ 92//74’ 18)*)1’ +03+’ 234’ :)5/,)’ 0(7D -,)24’ (5’ 0)’ 03?’ :))*’ 0 3*’ (7./1+/,’ /,’ 03?’)*+),+3(*)?’ +0)’ 2)31+’ ?/-:+’ /5’ +0)’ ?/8+,(*)1’ 0)’ +3-90+’ 1/7)+0(*9’ /5’ +0(1’ ;(*?’ 6/-2?’ 03<)’ P)183.)?’ 0(7’ 60)*’ 6,(+(*9’ +/’ 3’ 5,()*?’ 6(+0’ 60/7’ 0)’ 8/-2?’)*+,-1+’ 322’ +0)’ 1)8,)+1’ /5’ 0(1’ :,)31+ > *’ +0)’ 8/*+,3,4’ 0 -./*’ +0)’ 7/1+’ 8327’ 3*?’ ?)2(:),3+)’ 1-,<)4’ 0)’)@.,)11)1’ 3*’)*+(,)’ 13+(1538+(/*’ (*’ ,)52)8+(*9’ /*’ +0)’ .3,+’ 0)’ 037’ 38+)?’ 0 3*?’)3,*)1+24’ ,)8/77)*?1’ (+’ +/’ 0(1’ :)2/<)?’ .-.(2’ +/’ 5/22/6’ 0(1’)@37.2)’ (*’ 73(*+3(*9’ +0)’ 92/,(/-1’ 83-1)’)<)*’ 3+’ 0 +0)’ 03S3,?’ /5’ 0(1’ 2(5)’ ’)3..)3,1’ +0,/-90/-+’ +0)’).(1+2)’ +/’ 03<)’ 5)2+’ 3’ 1+,/*9’ 8/*<(8+(/*’ /5’ +0)’ +,-+0’ /5’ +0/1)’ 0 .,(*8(.2)1’ 0)’ 037?’)7:,38)?’ 3*?’ 92/,()1’ (*’ +0)’ 1-55),(*91’ 0)’ 037?’)*?-,)?’ (*’ 1-../,+’ /5’ +0)7’ +,(-7.0(*9’ (*’ +0)’ 0 5-22’ 311-,3*8)’ /5’ :)(*9’ 3../<)?’ :4’ 0(1’ 9,)3+’ 31+),’ 3*?’ /5’ ,)8)(<(*9’ 3+’ 0(1’ 03*?1’ 3’ 8,/6*’ /5’ ?(1+(*9-(10)?’ 2-1+,)’ A’ Z





L

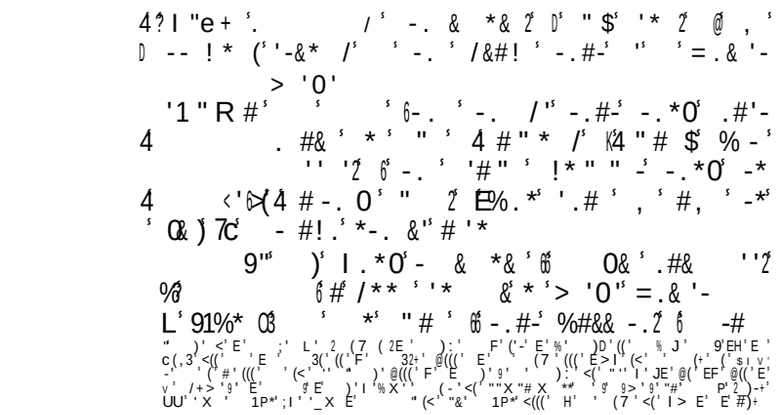
(7 /+04'(1')@0/,+)?' +/' 3. . /(*+' 53(+05-2' 7 (*(1+),1 ' 3*?' +/' 8/-,39) ' ?(2(9)*8) ' 5(?)2(+4 ' 3*?' .3+()*8) ' 31' M' +0)' 9//?' 1/2?(),' /5' 0,(1+ N' > F ' (*',)7)7 :,3*8)' /5' 0,(1+'31',(1)*'5,/7'+0)'?)3?' G ' (*'(7(+3+(/*'/5'+0)' 3./1+2)"1')@37.2) ' 9 ' ' ' 3*?' (*' 311-,)?' 53(+0' 3*?' 0/.) ' > J ')' 7 -1+' 63,*' +0)' 52/8;' 393(*1+' 5321)' +)380),1 ' 3*?' <3(*' 8/*+,/<),1()1 ' 1+-?4(*9 ' 31' 3*' 3.L ../<)?' 6/,;73*' O ,(90+24' +/' ?(<(?)' +0)' 6/,?' /5 V' +,-+0 N' H> ' 0)' .),*(8(/-1')5()8+1' /5' +0)'),,/,' /5' 47)*)-1' 3*?' #0(2)+-1 ' F ' G'ß 4)+' M' +0)' 5/-O%' M' ?3+(/*' /5' /?' 1+3*?1' 1-,) N' 3*?' M' 322' 60/' *37)' O +0)' *37)' /5' 0,(1+'N' 10/-2?' M' ?).3,+' 5,/7' (*(%' M' C-(+4 N' (9 ' /7)' 3,)' <)11)21' /5' 0/*/-,' /+0),1' /5' ?(10/*/-,' :-+' (7 /+04'7-1+' 1)) ;' +/' :)' +0)' 5/,7),' @ 'E ')' (1'+3-90+' 603+' +/' 52)) ' 3*?' 603+' +/' 5/22/6' 35+),' EE ' +/' 10-*' ?(1.-+3+(/-1' C-)1+(/*1' ' 3*?' +/' (*L 1+,-8+' /../1),1' 6(+0' 7)) ;*)11 ' (*' 0/.)1' /5'+0)(,':)(*9' ,)8/<),)?' 5,/7'+0)' 1*3,)' /5' +0)' ?)<(2' EJ > E

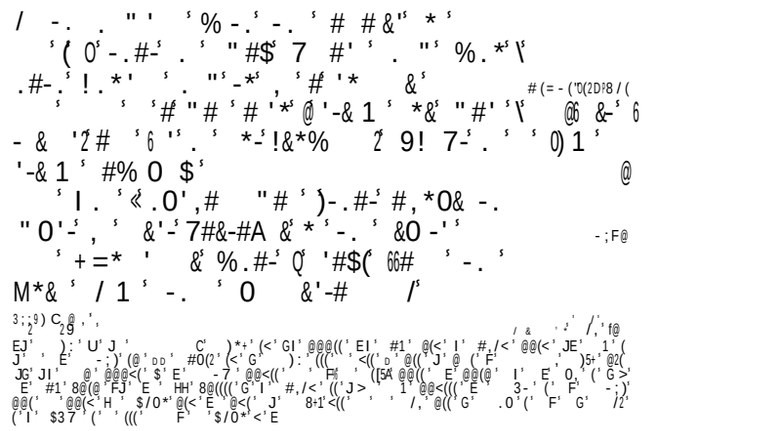
M /5' /?ßN' 3*?' +0/-90' /-+63,?' ?(1.)*13+(/*1' <3,4 ' 4)+' 0(1' ,)32' .)/.2)' 03<) ' (*')<),4' 39) ' 1-:1+3*+(3224' +0)' 137)' ,)2(9(/*' 3*?' 1),<)' /?' 35+),' +0)' 73**),' /5' +0)(,' 5/,)L 53+0),1' 3*?' .,)?)8)11/,1' M' 6(+0' 3' .-,)' 8/*18()*8) ' :)(*9' .3,+3;),1' /5' +0)' 137)' M' 9,38) ' 7),84' 3*?' .)38) ' 5,/7' /?' +0)' 3+0),' 3*?' /-,' /,?' $)1-1' 0,(1+ N > ' 0)' +)3,1' /5' 2/<(*9' 0,(1+(3*' 5,()*?1' 60)*' 1).3,3+)?' 3+' +0)' 832' /5' ?-+4 =' 73;)' 634' 5/,' +0)(,' 5),<)*+' .,34),1' 5/,')380' /+0),' +0)(,')3,*)1+' ?)1(,)1' /5' 7))+(*9' 393(*' /*')3,+0' 2)3?' +/' +0)' 80)),5-2' 0/.)' /5' 3' :2)11)?' ,)%-*(/*' (*' 0)3<)*' 3*?' +0)' 5-2*)11' /5'/4'+/' 60(80' +0)4' 6(22' +0)*' :)' 3?7(++)?' 3*?' +0)(,' ,)7)7:,3*8)' /5' +0)' 82)3,')<(?)*8)1' /5' M' -*5)(9*)?' 53(+0 N' 60(80' +0)4' 03<)' 6(+*)11)?' (*')380' /+0),')@8(+)' +0)(,' +03*;19(<(*91'+/' /?' 5/,' 0(1' 9,38)' :)L 1+/6)?' -./*' +0)7 ' ' 1 ' @@' J > JG' % ' ' JE>' JG' ' -) ' (' > (K >="0)' .(/-1' (*1+,-8+(/*1' 3*?' 5),<)*+' .,34),1' /5' :)2()<(*9' .3,)*+1 ' 3,)' /5+)*' +0)' 7)3*1' /5'8/*L <),1(/*' +/' +0)(,' 80(2?,)*' 4)+' 1-80' 31')*'/4' +0(1' 3?<3*L +39)' 10/-2?' :)' ,)7(*?)?' +03+' +0)4' 6(22' ?),(<)' */' :)*)5(+' 5,/7' O' +0)' -*5)(9*)?' 53(+0' _' /5' +0)' *)3,)1' ,)23+(/*1' -*L 2)11' +0)' 137)' ?6)22' (*' +0)7' 321/')' /-90+' +/')@0/,+' +0/1)' /5' 60/7'6)' 03<)' +0)' :)1+' /.(*(/*' M' +/' 1+(,' -.' +0)' M' 9(5+' /5' /?' +03+' (1' (*' +0)7 N' 3*?' +/' /88-.4' 6(+0' (+' (*' +0)' ?-+()1' /5' +0)' 1+3+((/*1' 322/++)?' +0)7 >="0)' *)6' *3+-,) ' 8/77-*(83+)?' (*',)9)*),3+(/*' 2)3?1' +/' +,-)' 2(:),+4 ' 3*?' <(8+/,4' /<),' +0)' 5)3,' /5' 73*' 3*?' /5' +0/1)' ,) . /380)1' 8/*L +-7)2()1' 3*?' (*'-,()1' 60(80' 734' :)')@.)8+)?' (*' +0)' .3+0' /5' ?-+4 ' 0)*)<),' +0),)5/,) ' 6)' 5(*?' :-,' 0)3,+1' ?(1L 8/-,39)?' /-,' 03*?1' 6)3;)*)?' /,' /-,')3,*)1+*)11' (*' +0)' 6/,;' /5' +0)' /,?' 3:3+)?' 6)' 10/-2?' 318,(:)' (+' +/' +0)' ,)L 73(*1' /5' -*:)2()5' 3*?' 3' 83,*3' 7(*?' 3*?' +/' +0)' +)7.+3L +(/*1' /5' 3+3*' 3*?' 6)' 10/-2?' 1+,(<)' +0)' 7/,)' 5),<)*+24' (*' .,34),' 5/,' M' 1-..2()1' /5' +0)' .(,(+' /5' 0,(1+ N' +/' (*<(L 9/,3+)' /-,' 53(+0' 3*?' 0/.)' +/' M' 10)?' 3:,/3?' +0)' 2/<)' /5' M' /?' (*' /-,' 0)3,+1 N' +/' 3*(73+)' -1' 6(+0' S)32' 3*?' 0/24' 355)8+(/*1' 3*?' +/' .,/?-8)' (*' -1' 3' 1/-*?' 7(*?' 3*?' 0)3L <)*24' 6(1?/7' ' ' <' J> ' %)' (' I> K 0)*' 6)' 10322' M' */+' :)' 31037)?' /5' +0)' +)1+(7/*4' /5' +0)' M' /,?' N' :-+' 92/,4' (*' (+')<)*' 37/*9' 0(1' 7/1+' 18/,*5-2')*)7()1' 6)' 10322' */+' 0)1(+3+)' +/' '/(*' /-,1)2<)1' +/' 0(1' 7/1+' ?)1.(1)?' 3*?' .),1)8-+)?' 1),<3*+1' 3*?' 6)' 10322' 6(2%' :924' :)8/7)' M' .3,+3;),1' /5' +0)' 3552(8+(/*1' /5'+0)' 9/1.)2 N' (*' ?).)*?)*8)' /*' M' +0)' ./6),' /5' /?' N' +/' 1-../,+' 3*?' 8/75/,+-1 >=*.,/./,+(/*' 31' 0' +0)' .(,(+' 6(+*)11)+0' 6(+0' M /-,' 1.(,(+1' +03+' 6)' 3,)' +0)' 80(2?,)*' /5' /?=N' 3*?' M' +03+' 0)' 03+0' 13<)?' -1' 3*?' 8322)?' -1' 6(+0' 3' 0/24' 8322(*9' M' */+' 388/,?(*9' +/' /-,' 6/,;1' :-+' 388/,?(*9' +/' 0(1' ./-,%' M' ./1)' 3*?' 9,38)' 9(<)*' -1' (*' 0,(1+:)5/,)' +0)' 6/,2?' :)% M' 93*' N' 6)' 10322' 5))2' /-,1)2<)1' M' 8/*1+,3(*)?' :4' 2/<)' N' +/' ?)<+/+)' /-,1)2<)1' 3*?' 322' /-,' +32)*+1' +/' 0(1' 92/,4' 0-1' 6)' 10322' 73*(5)1+' +0)' - ;@' *3+-,)' 3' /-,' 8322(*9' 3*?' 3 +03+' ?/8+,(*)' 60(80' (1' 1/' 7-80' /../1)?' 3*?' .),<),+)?' :4' +0)' .,(?)' 3*?' 83,*32(+4' /5'+0)' 0-73*' 0)3,+

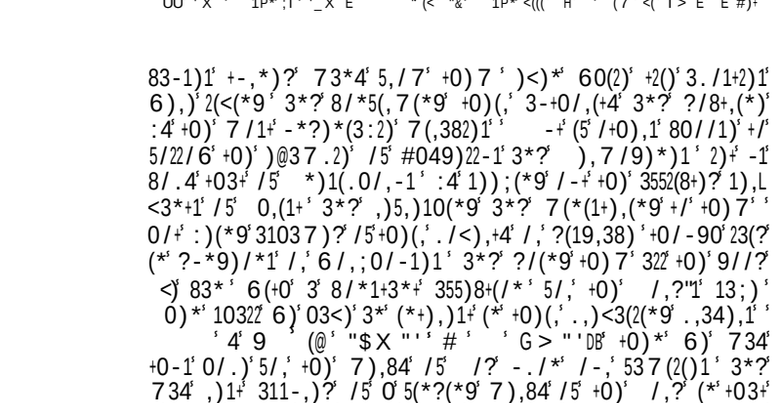
' > G

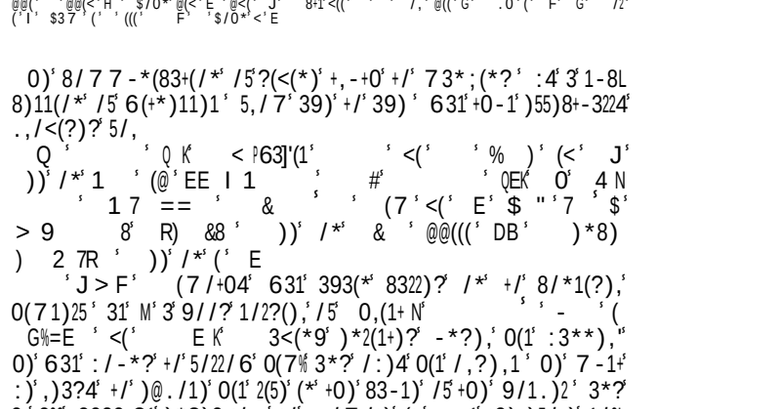
)' 10/-2?' :2)11' +0)' /,?' 8/*+(*-3224' 5/,' M' +0)' 3..)3,% M' (*9' /5' /-,' 3<(/-,' $)1-1' 0,(1+ N' 5/,' 603+' 0)' 031' ?/*)' 3*?' 1-55),)?' +/' M' 3:/2(10' ?)3+0 N' 3*?' 5/,' 0(1' 9/1.)2' :4' 60(80' 0)' 031' M' :,/-90+' 2(5)' 3*?' (7 7 /,+32(+4' +/' 2(90+ N' 1' 6)' 03<)' 1-80' ?)8(1(<)' 311-,3*8)' /5' 3' 5-+-,)' 1+3+) ' 1-80' 5-22' (*5/,73+(/*' 8/*8),*(*9' +0)' *3+-,)' /5' (+' 3*?' 1/' 82)3,' 3' .,/1.)8+' /5' (7 7 /,+32' 5)2(8(+4 ' :4' 53(+0' (*' 0(7' M' 60/' (1' M' +0)')1-,,)8+(/*' 3*?' +0)' (5)' ß N' 2)+' -1' M' 9(<)' +0)' 7/,)' M' ?(2(9)*8) N' (*' 73;(*9' /-,' .),1/*32' (*+),)1+' (*' 0(1' 132<3L +(/*' 1-,)' +/' /-,' 1/-21' 3*?' 2)+' 1-80' 31' 3,)' 3../(*+)?' +/' .-:2(10'+0)1)' (7 /,+3*+'+(?(*91'+/' 73*;(*?' 3*?' +/' (*1+,-8+' +0)' *3+(/*1' (*' +0)' +,-+01' /5' 0,(1+' .,).3,)' 5/,' 1-55),(*91' ;*/6(*9'+03+' 0(1' 7/1+' 0/*/-,)?' 1),<3*+1' 03<)' 32634' :))*' 7/1+' 8/*5/,7)?' +/' 0(7' (*' +0(1' ,)1.)8+' 5' +0)*' 6)' :)' ?)1.(1)?' 3*?' .),1)8-+)?' 5/,' M' +0(1' 83-1) N' 2)+' -1' */+' 9(<)' .238)')(+0),' +/' 5)3,' /,' 1037)ß 5/,' 0)' M' (*' 60/7' 6)' 03<)' M' :)2()<)?' N' (1' 3:2)' +/' :)3,' -1' /-+' 3*?' +/' ;))./-1' 135)' M' +/' +03+' ?34 N' 60)*' 0)' 10322' 3..)3,' +/' .),5)8+' /-,' 5)2(L 8(+4 > 0)' 0/.)' /5' +0)' 7)3*)1+' ,)32' 0,(1+(3*',)1+1' /*' +0)' 137)' :31(1' 6(+0' +03+' /5' +0)' 9,)3+)1+' 3./1+2) ')' +//' 031' 2)3,*)?' +0)' <32-)' 3*?' ?3*9),' /5' 0(1' 1/-2' 3*?' +),*32' (*L +),)1+1' 3*?' 0)')*+,-1+1' +0)7 ' :4' ?3(24' 53(+0' 3*?' .,34),' (*' +0)')?))7),'1' 03*?1' 31' +0)' /*24' 1)8-,(+4' 6(+0' 60(80' 0)' 83*' :)' 13+(15()?')' +//' 031' M' :)2()<)?' (*' 0(7 N' 3*?' 031' 1/7)')@.),()*8)' /5' 0(1' ./6),' +,-+0' 3*?' 8/7.311(/*' ß +0)' 3*16),1' 60(80' 0)' 031' ,)8)(<)?' +/' 0(1' .,34),1' 3*?%' +0)' 803*9)' 60(80' 031' :))*' 6,/-90+' (*' 0(1' 1/-2' (*8,)31)' 3*?' 8/*5(,7' 0(1' 8/*5(?)*8) ' ' <' I ' K 3*?' +0-1' 0)' (1' M' .),1-3?)?' +03+' +0)' /,?' $)1-1' 6(22' .,)1),<)' 0(7' M' -*+/' 0(1' 0)3<)*24' ;(*9?/7 N' 603+)<),' ?3*9),1' +,(321' 3*?')*)7()1' 0)' 734' 7))+' 6(+0' (*' 0(1' 634' +0(+0), > */,?),' +/' ./11)11' +0(1' 9//?0/.)' 6)' 7-1+' 3?0),)' 1+)?531+24' +/' M' +0)' 5/,7' /5' 1/-*?' 6/,?1 N' 60(80' +0)' 3./1+2)1' 03<)' +3-90+' -1ß */+/*24',)')8+(*9*)6' ' :-+*)<' 60(80' 3,)' /5+)*)7.2/4)?' +/')@32+/*)' .3,+' /5' ,)2(%% 9(/*' :4' ?,36(*9' +0)' 3++)*+(/*' 5,/7' /+0),1' /5')C-32' (7L ./,+3*8) ')' 7-1+' 321/:)' 83,)5-2' +/' 0/2?')<)*' 3*' /,L +0/?/@8,))?' M' (*' 53(+0' 3*?' 2/<)' 60(80' 3,)' (*' 0,(1+$)1-1ß N' +0(1' 31' 6)22' 31' 7(*(1+),(32' 53(+05-2*)11' 7-1+' :)' 3++)7.+)?' M' :4' +0)' /24' .(,(+' 60(80' ?6)22)+0' (*' -1ß N' 3*?' (+' 6(22' *)<),' :)' .),5,/7)?' :4' +0/1)' M' 60/' +,-1+' (*' +0)(,' /6*' M' 0)3,+1 N' 3*?' M' 2)3*+/' +0)(,' /6*' -*?),1+3*?(*91 N >)' *))?' */+' 6/*?),' +03+' 1)25%6(1?/7' 3*?' 3' 8/*+) 7.+' /5' +0)' (*52-)*8)1' /5' +0)' /24' .(,(+' -*(+)?' 6(+0' 3' ?(12(;)' +/' +0)' 0-7:2(*9' +,-+01' /5' +0)' 9/1.)2' 3*?' +/' :)3,' +0)' 8,/11' 5/,' 0,(1+"1' 13;)' 10/-2?' +-,*' 1/' 73*4' (*' +0)1)' 23++),' 39)1' 5,/7' ,)93,?(*9' +0)' 6,(+(*91' /5% +0)' 3./1+2)1' 5/,' 1(7(23,

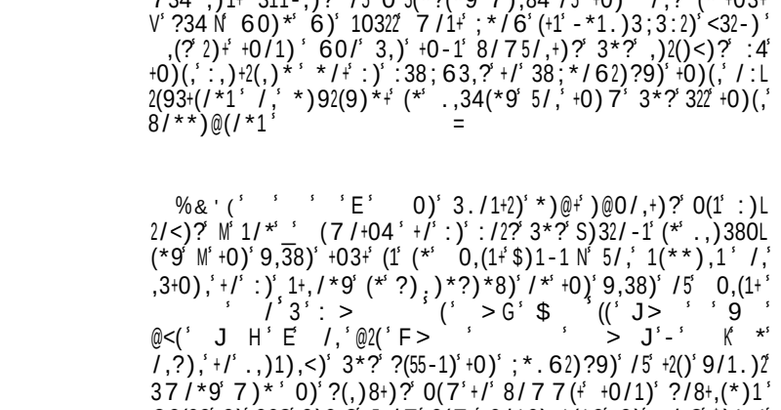
% #

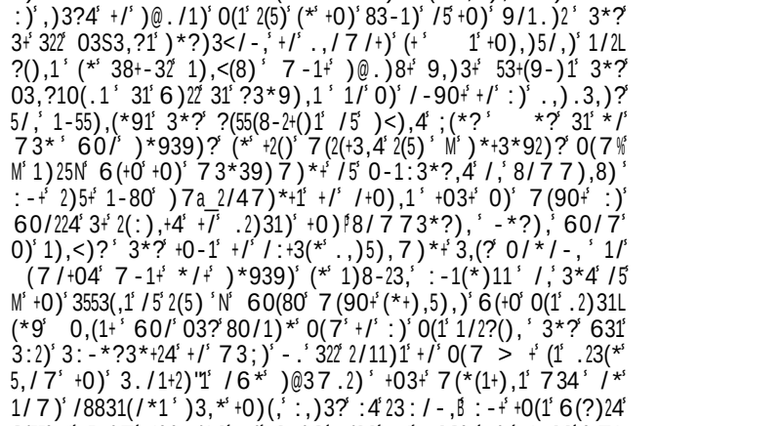


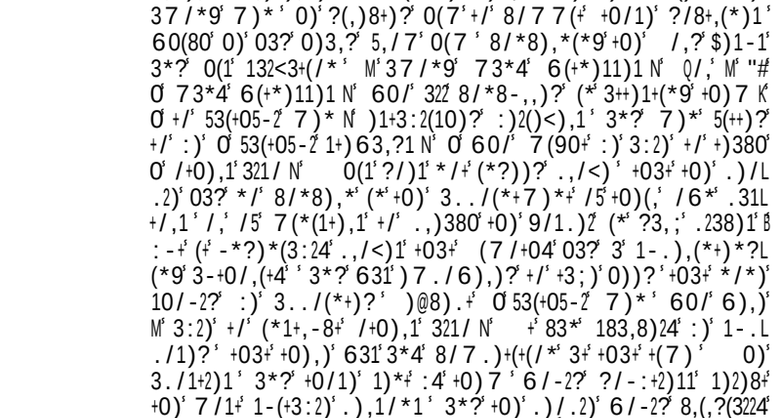


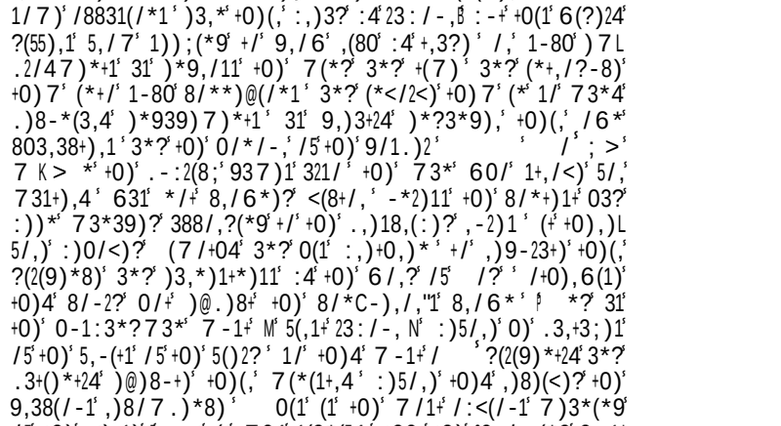


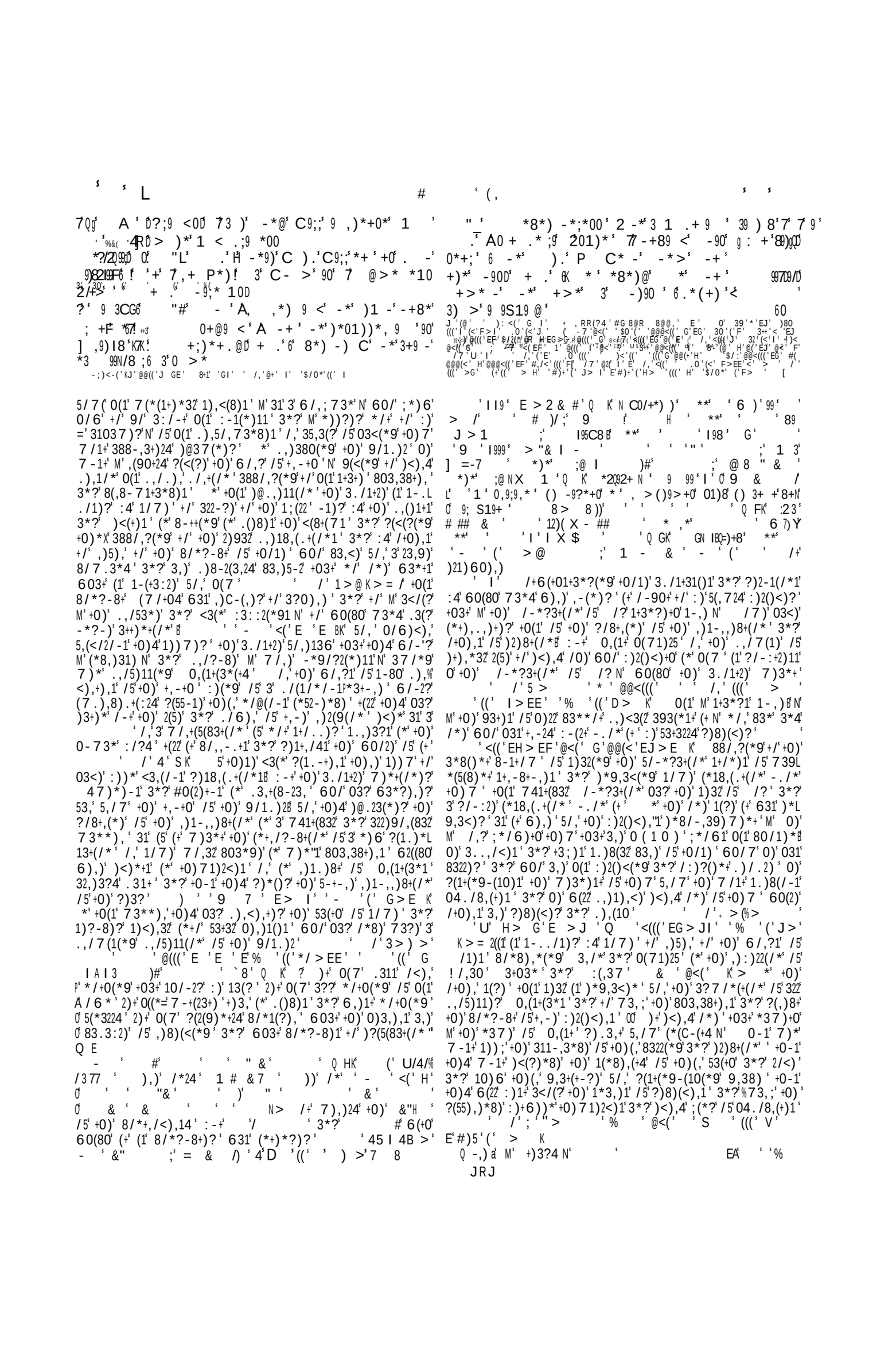


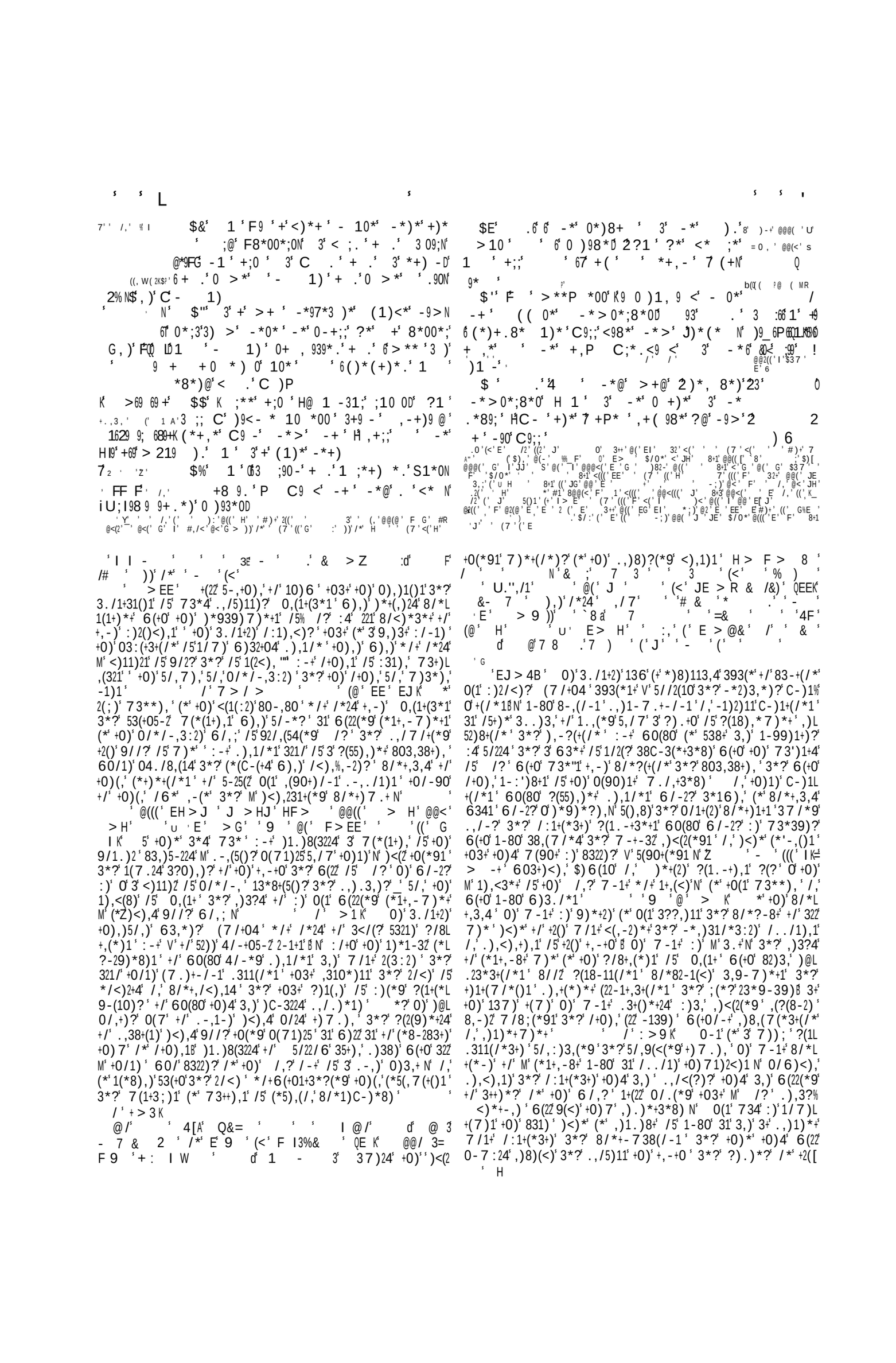


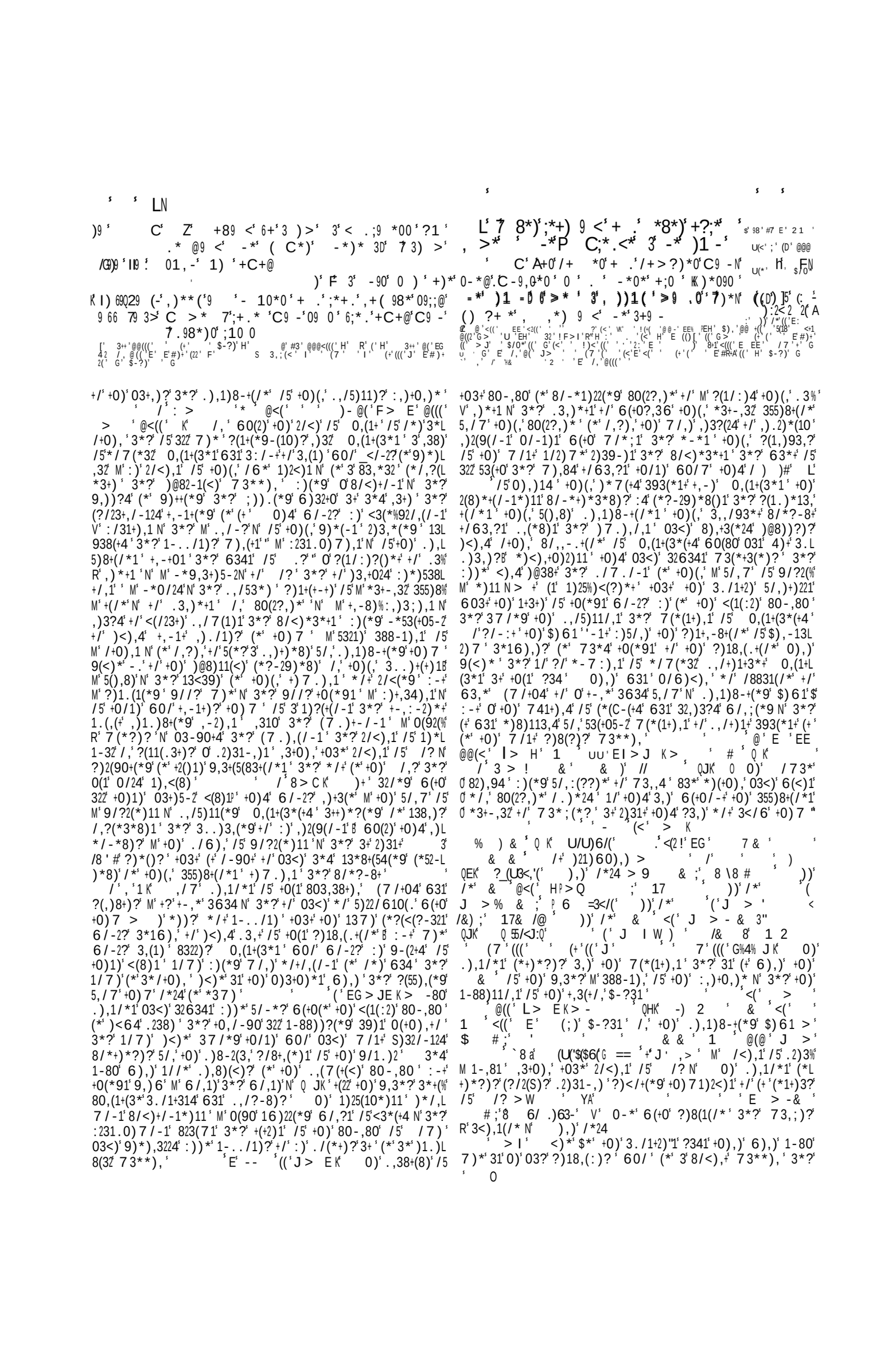


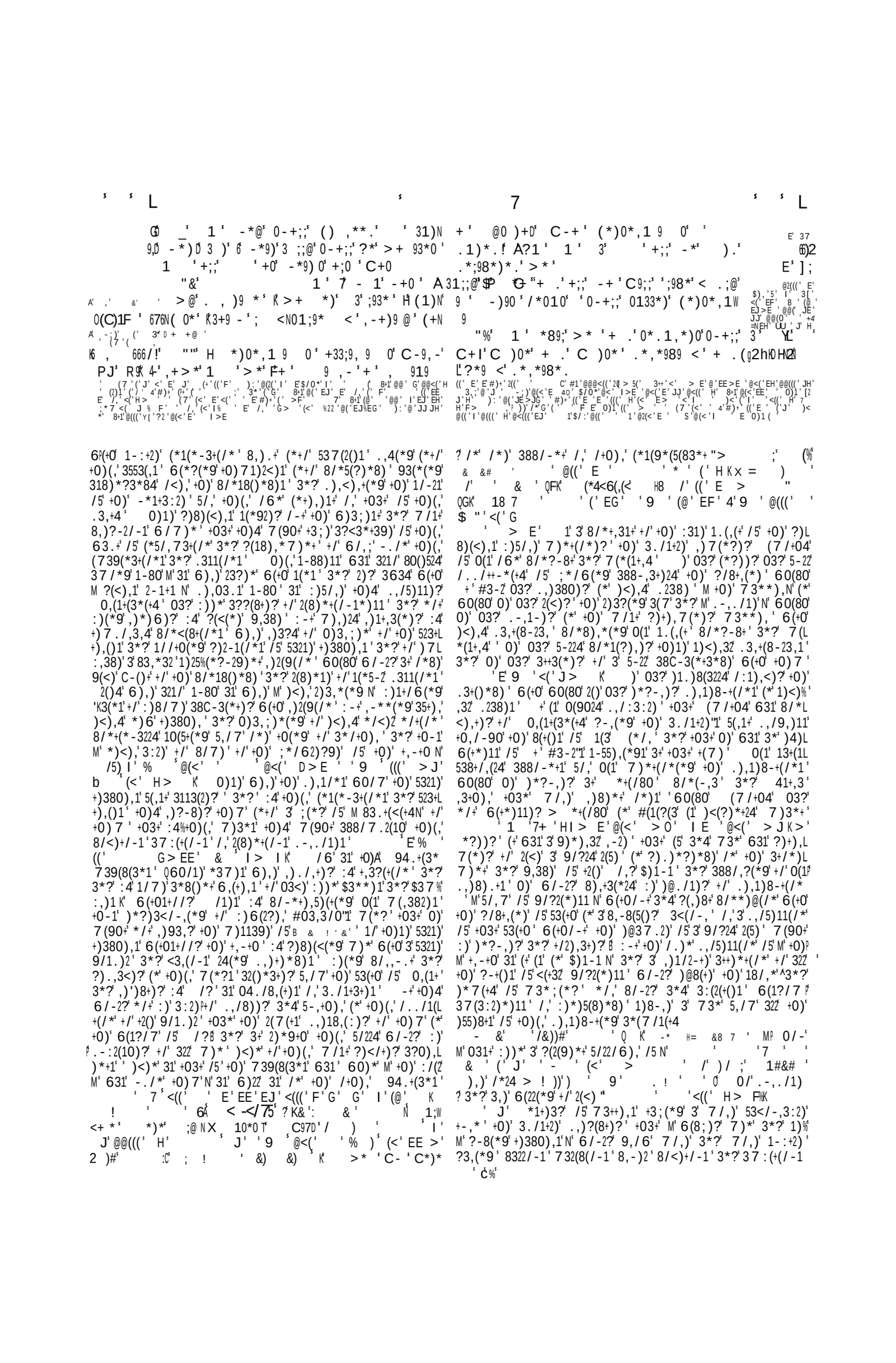


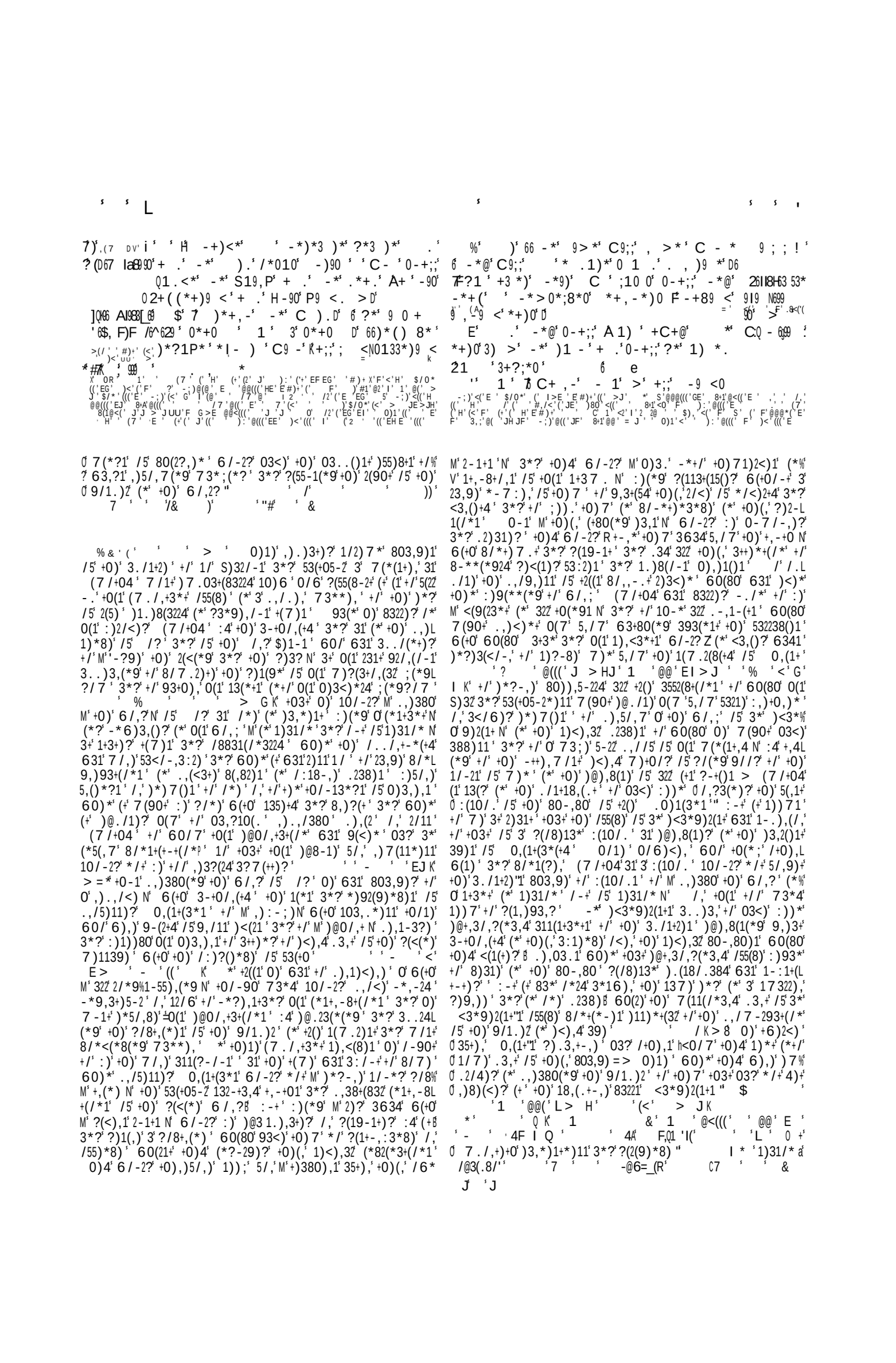


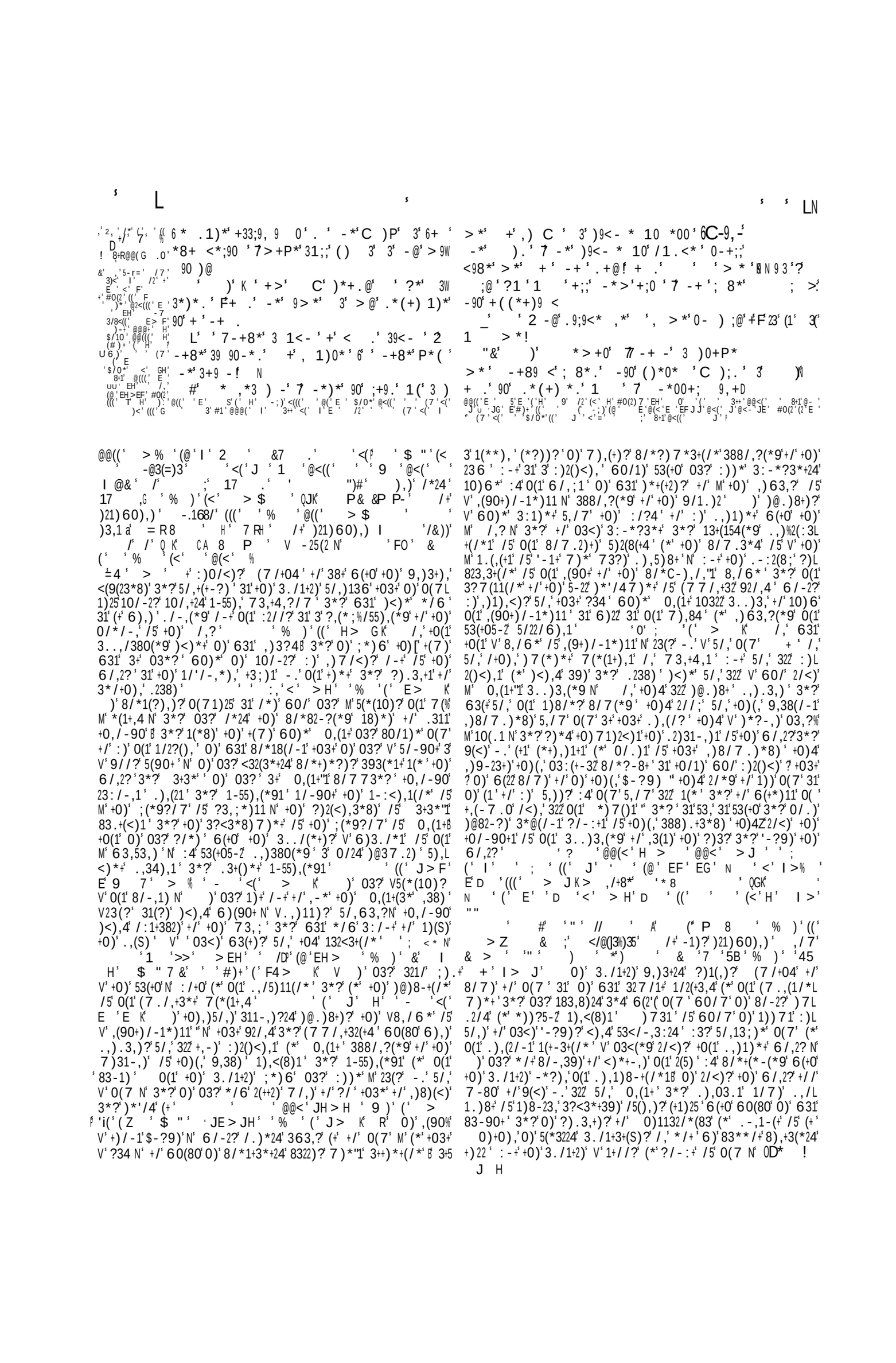


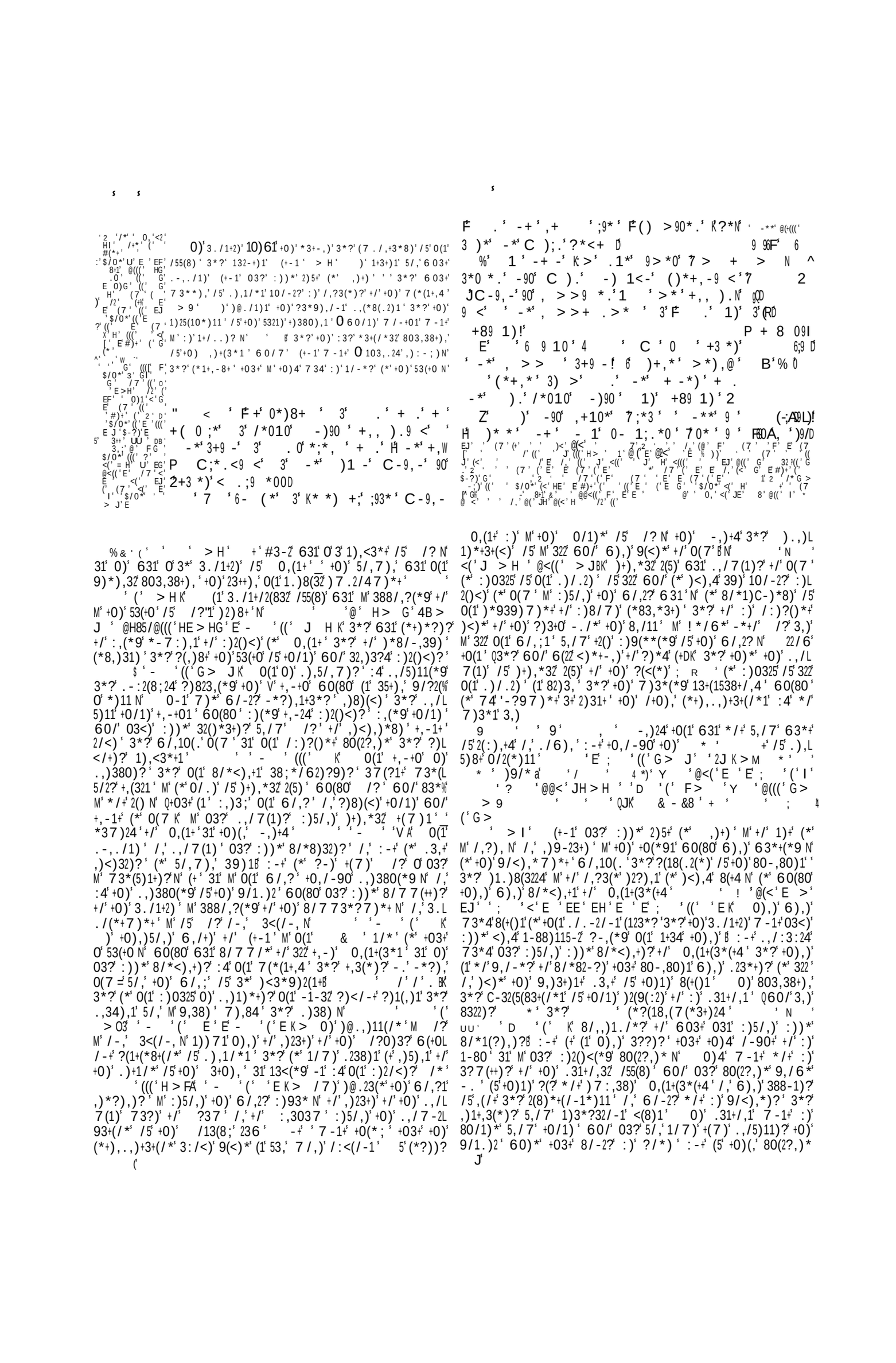


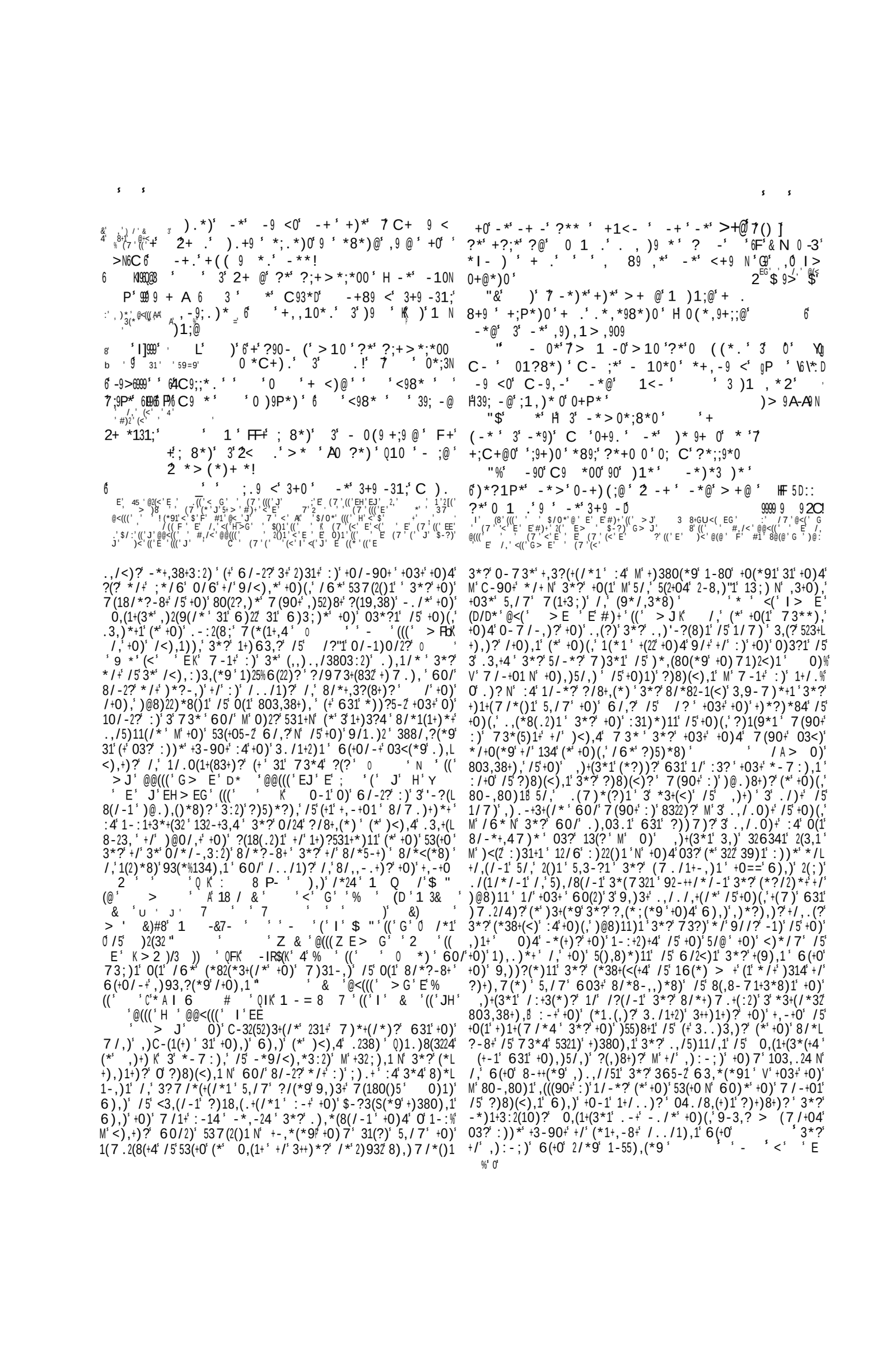


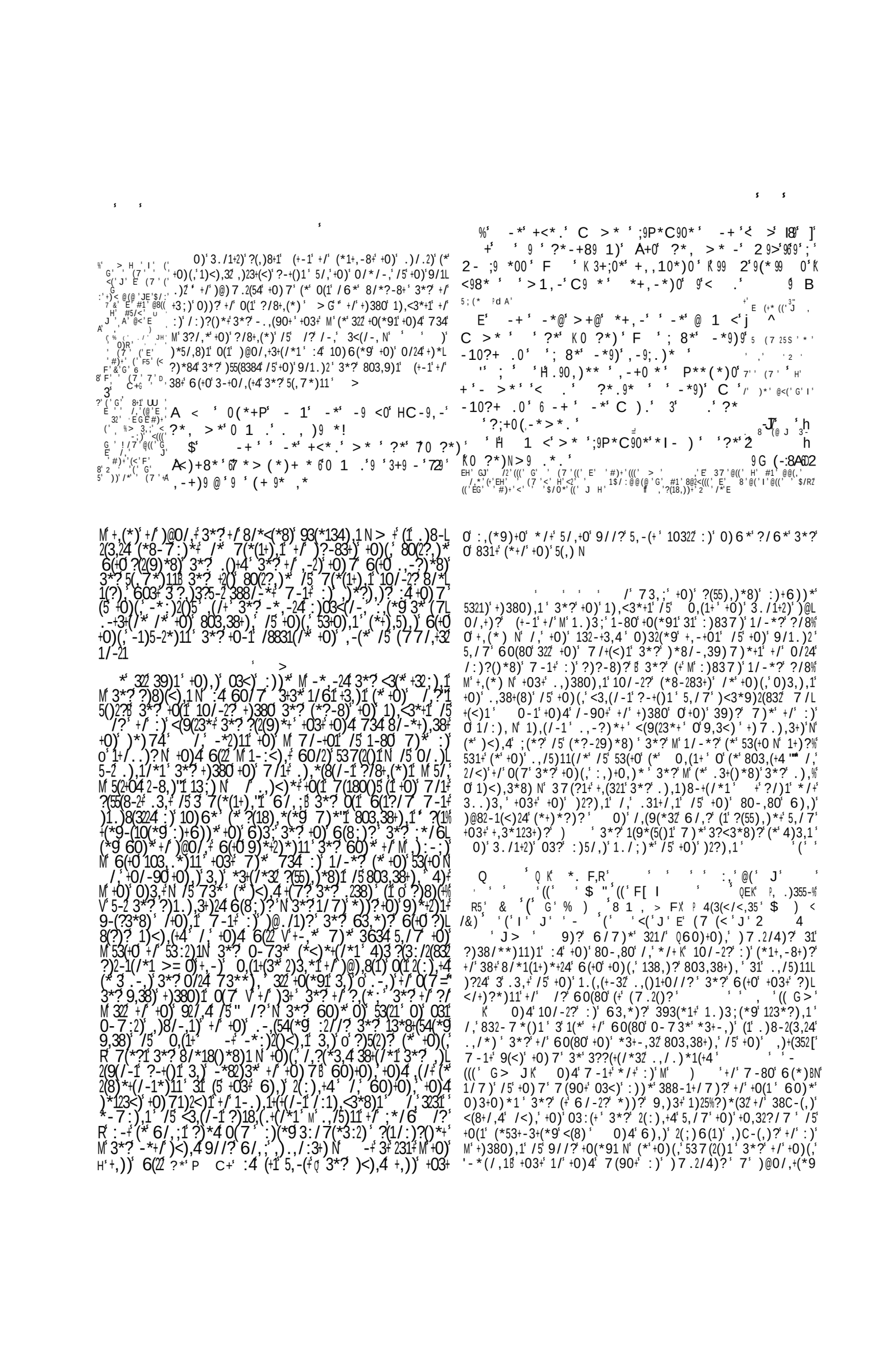


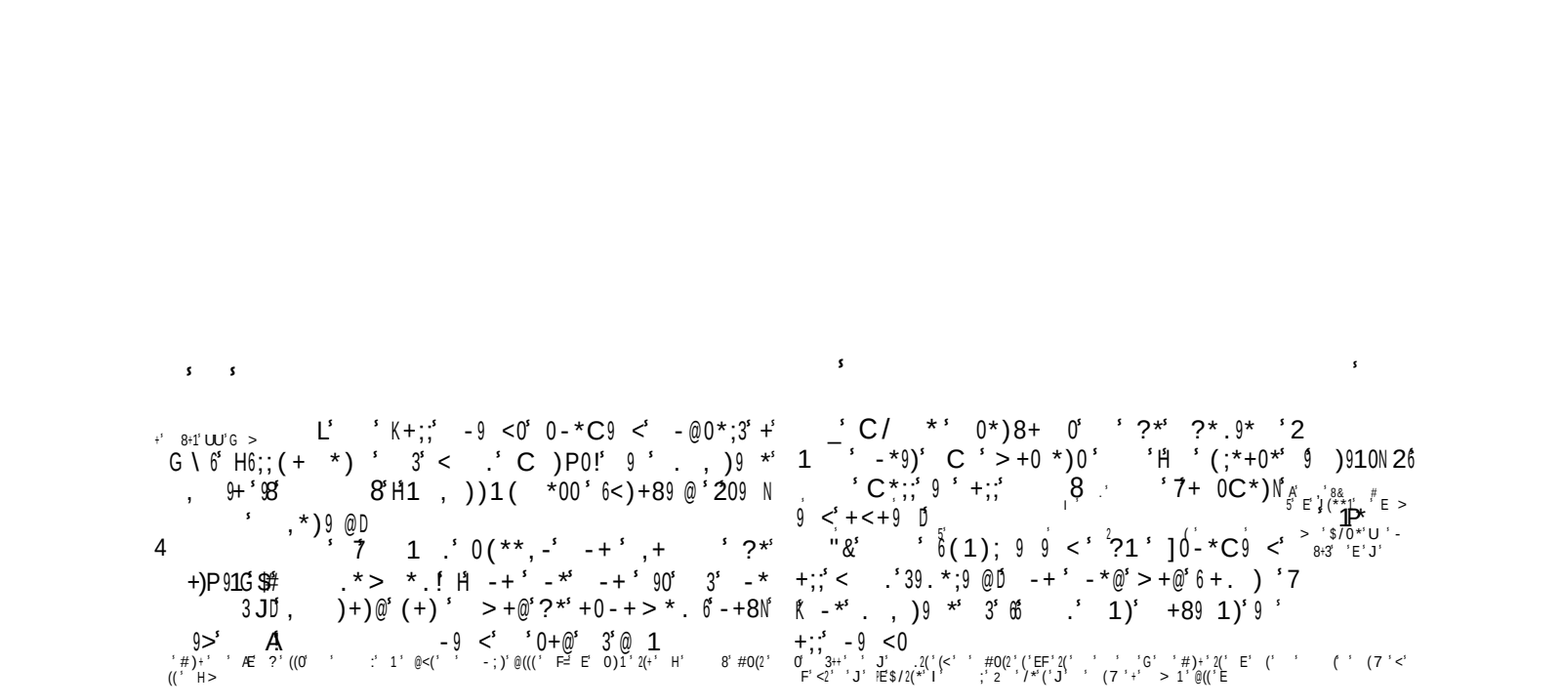


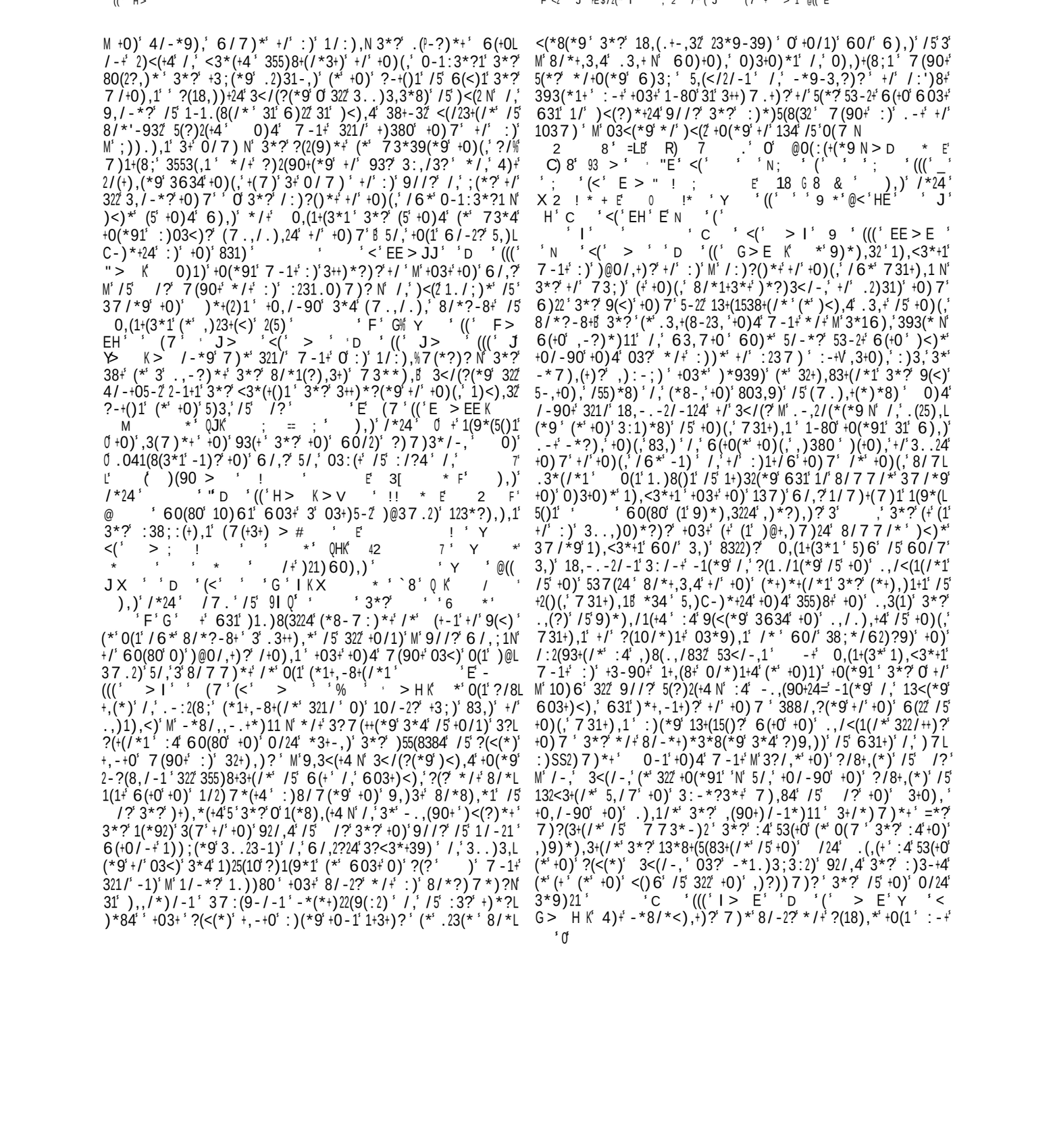


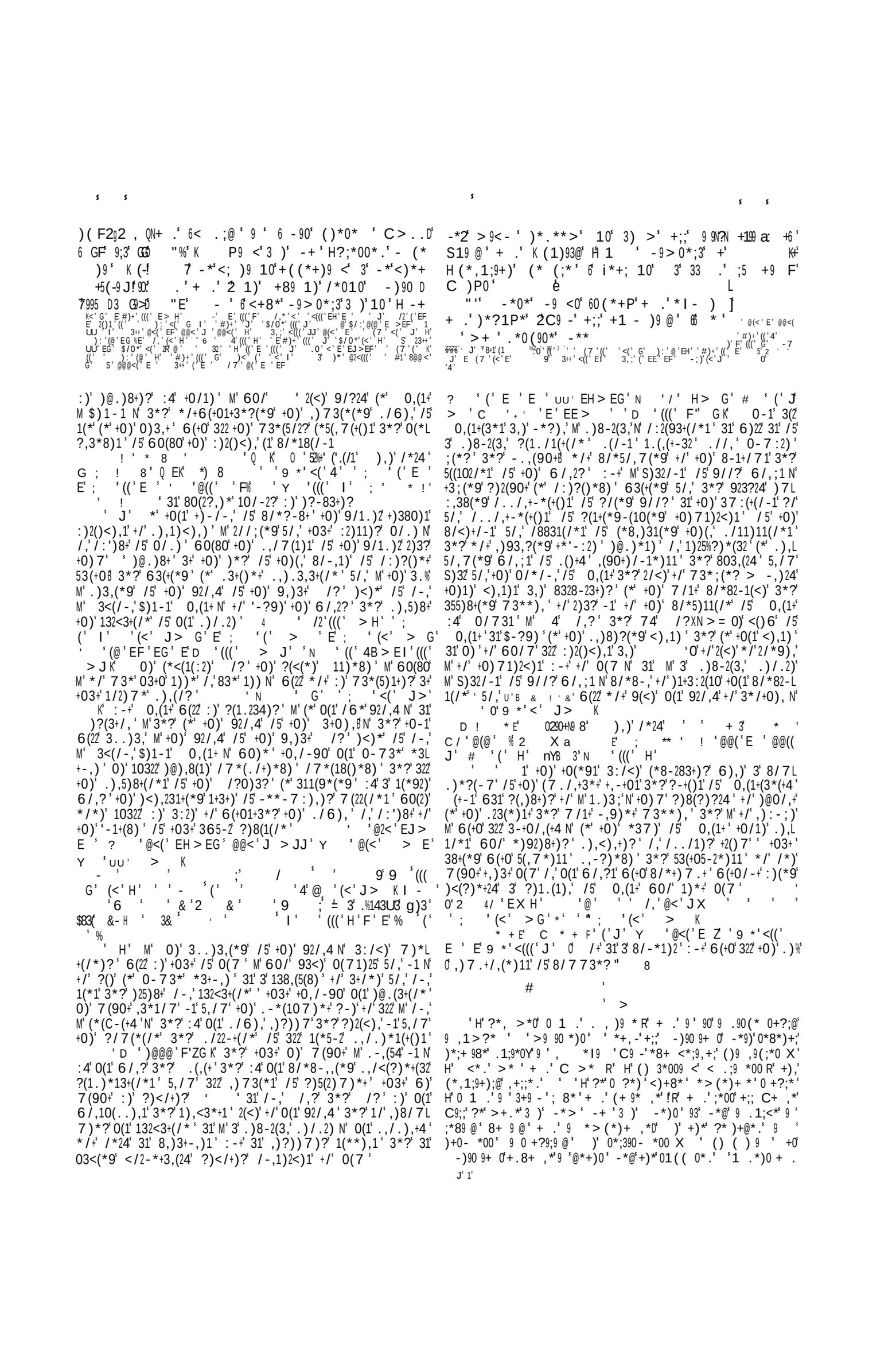


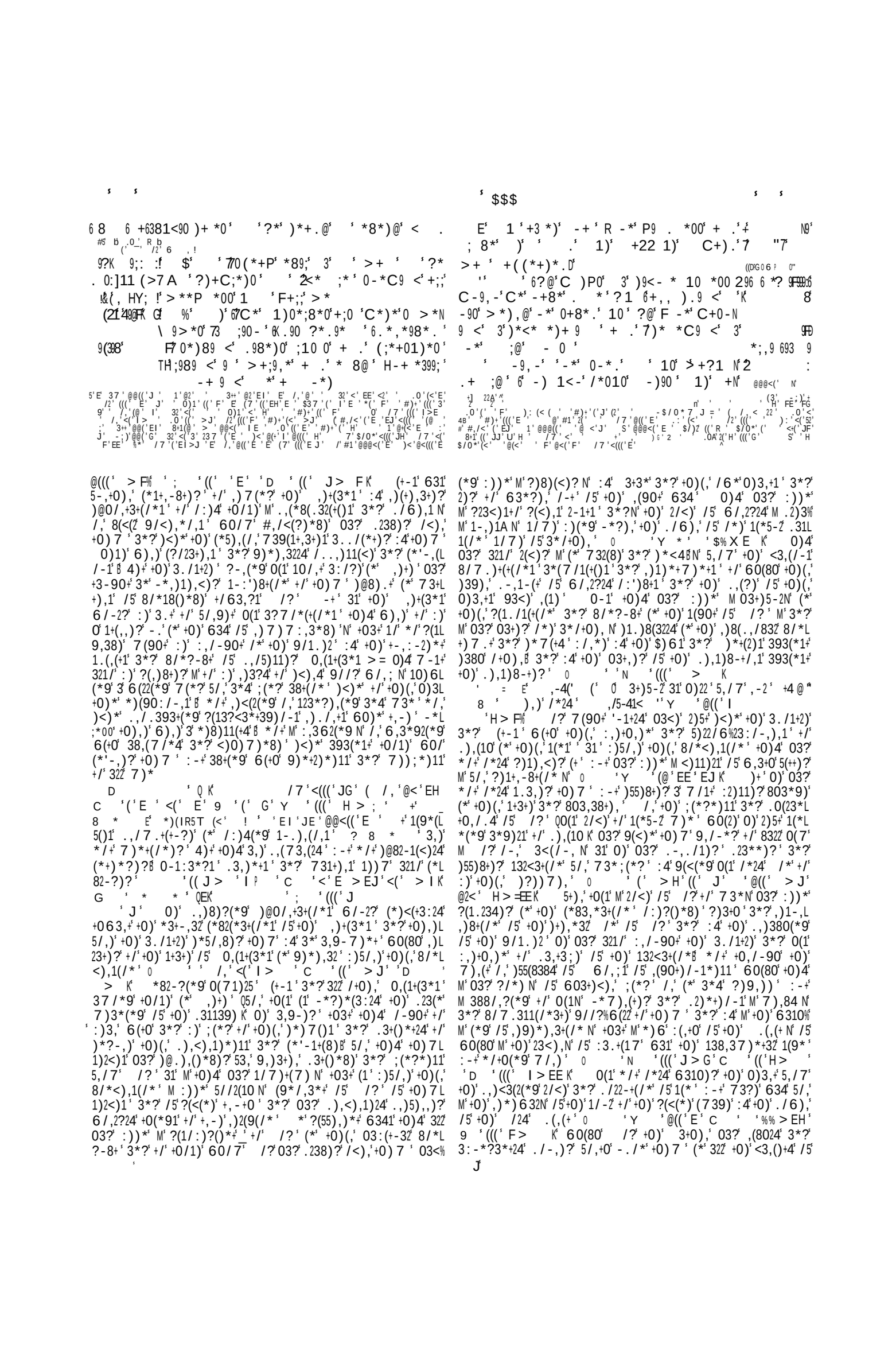


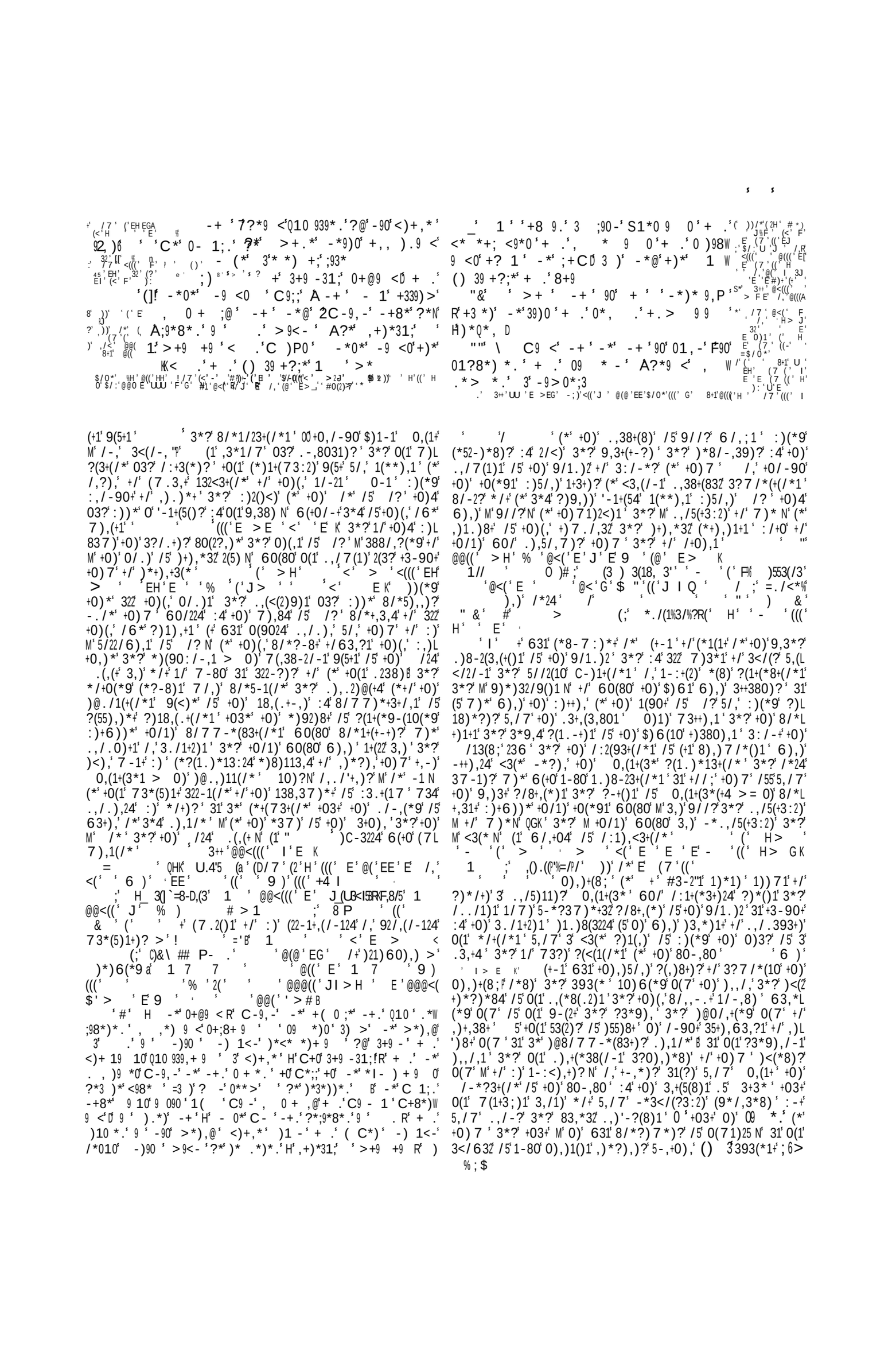


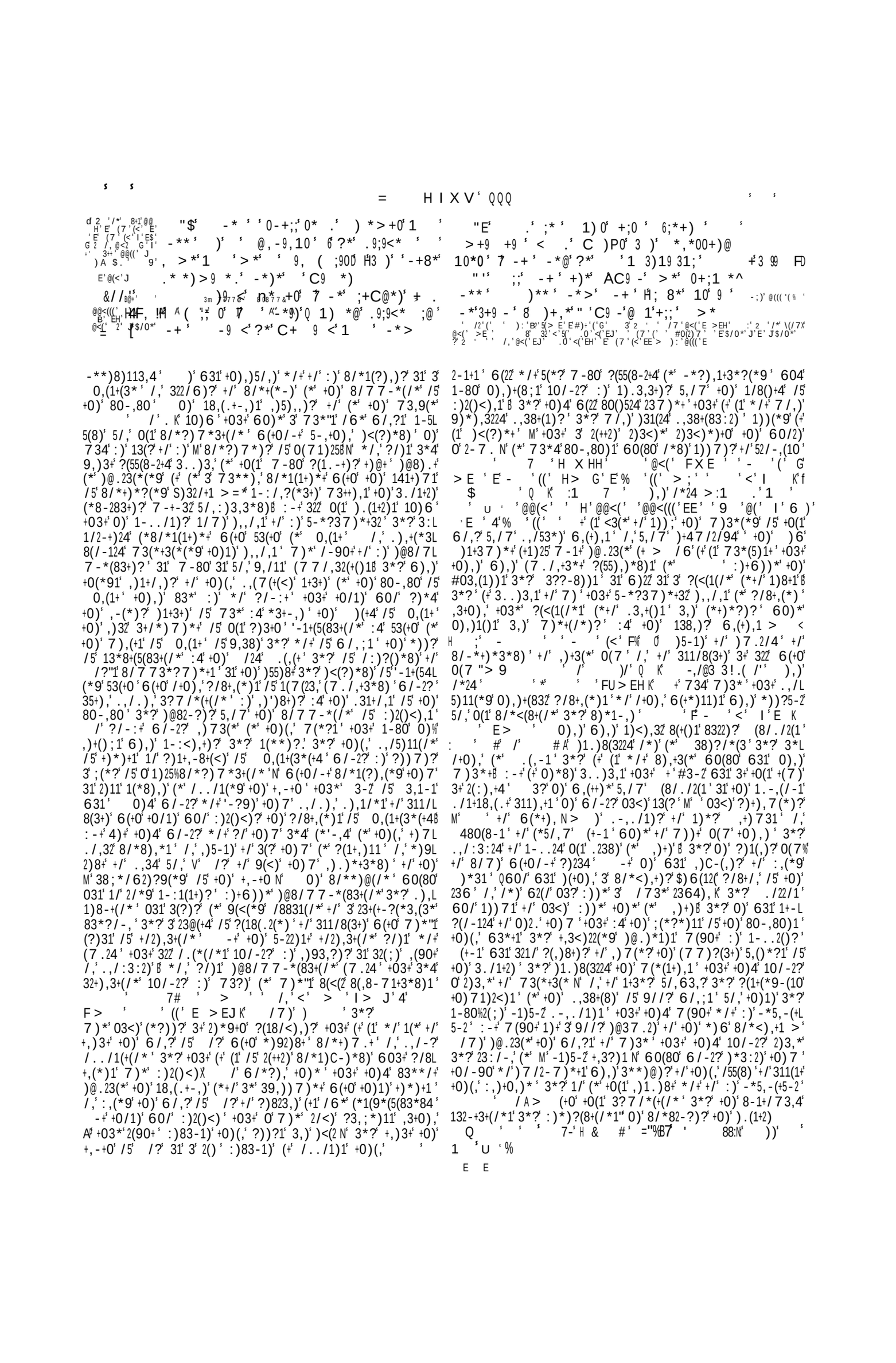


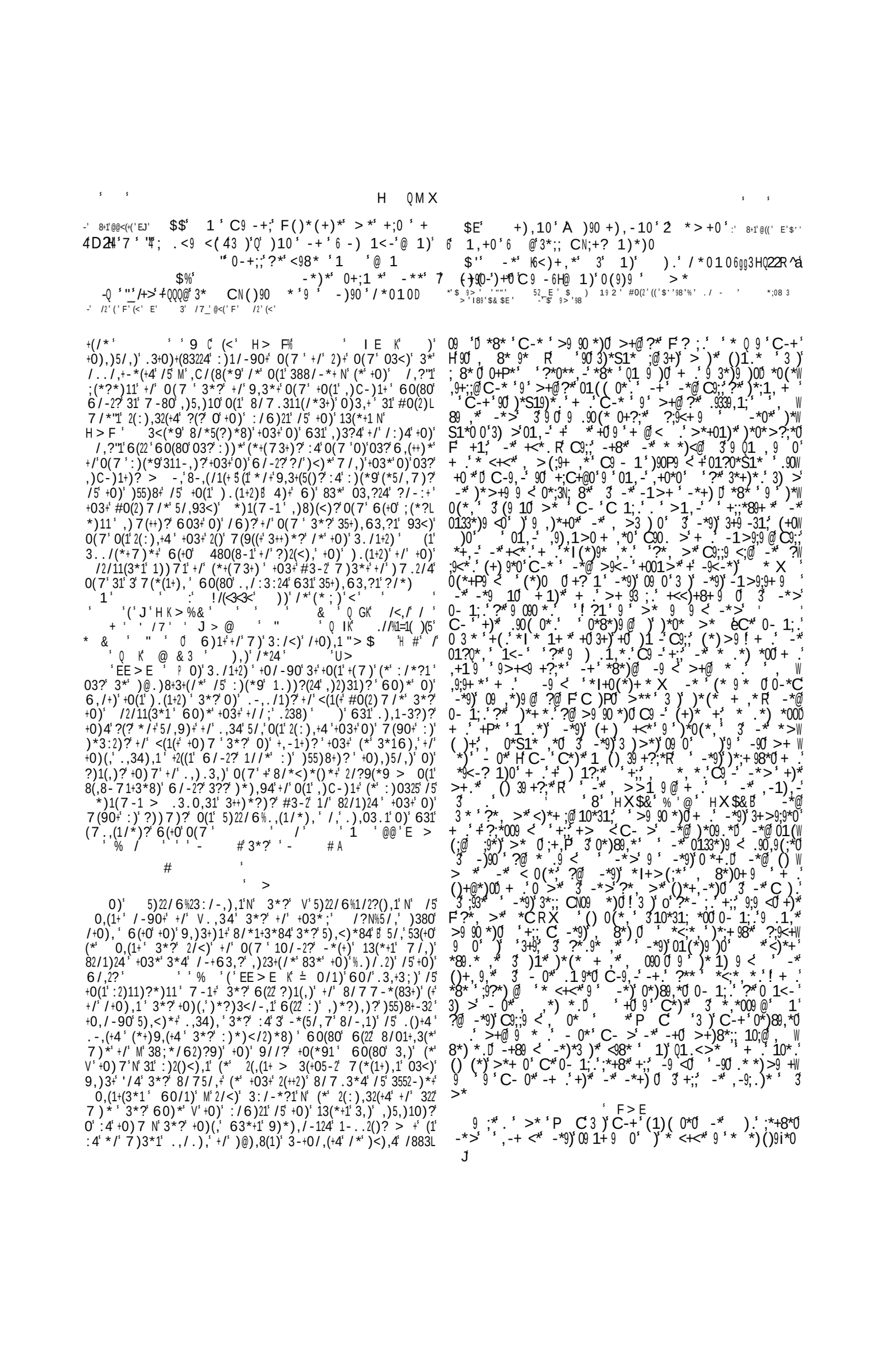




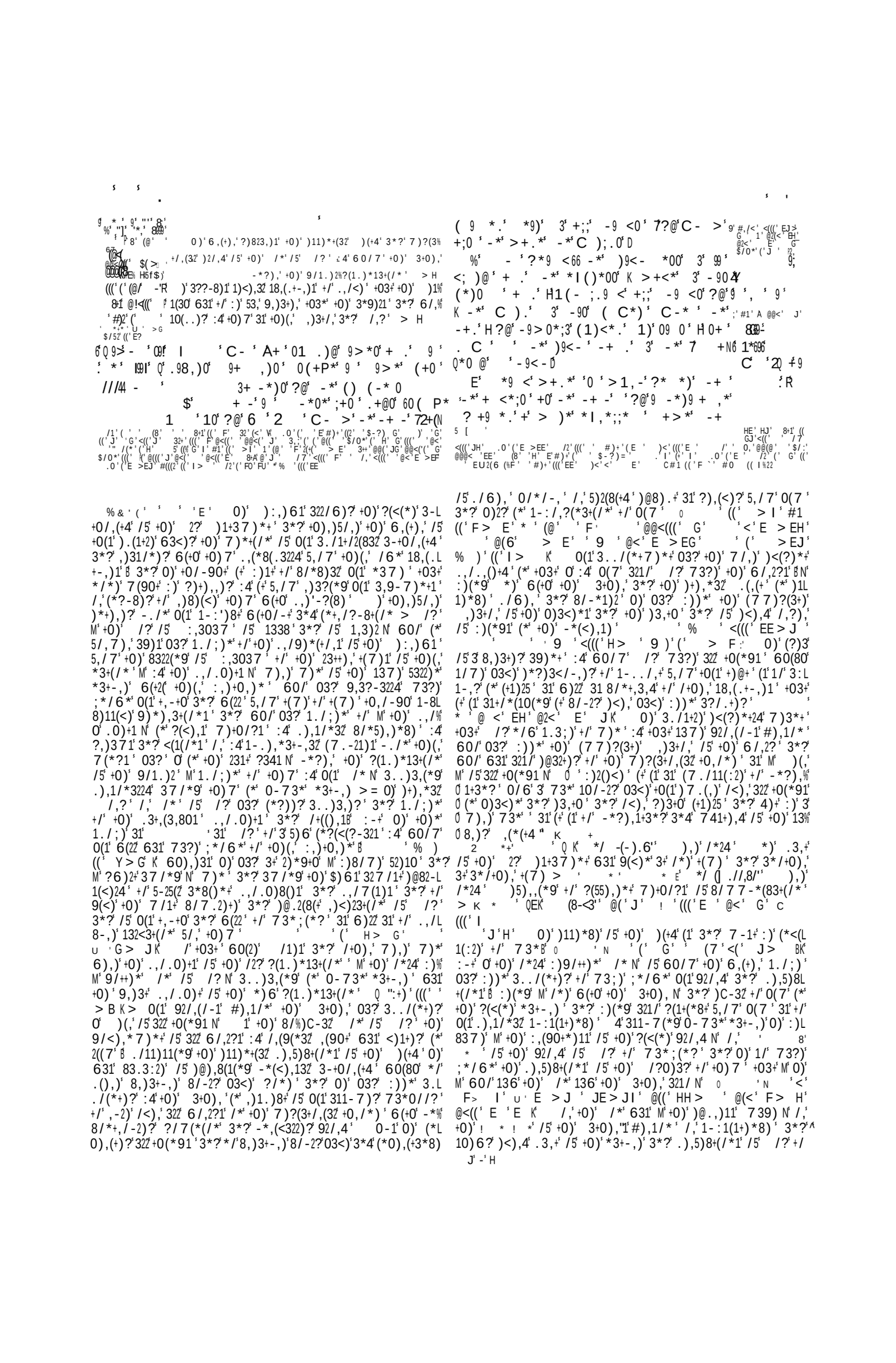


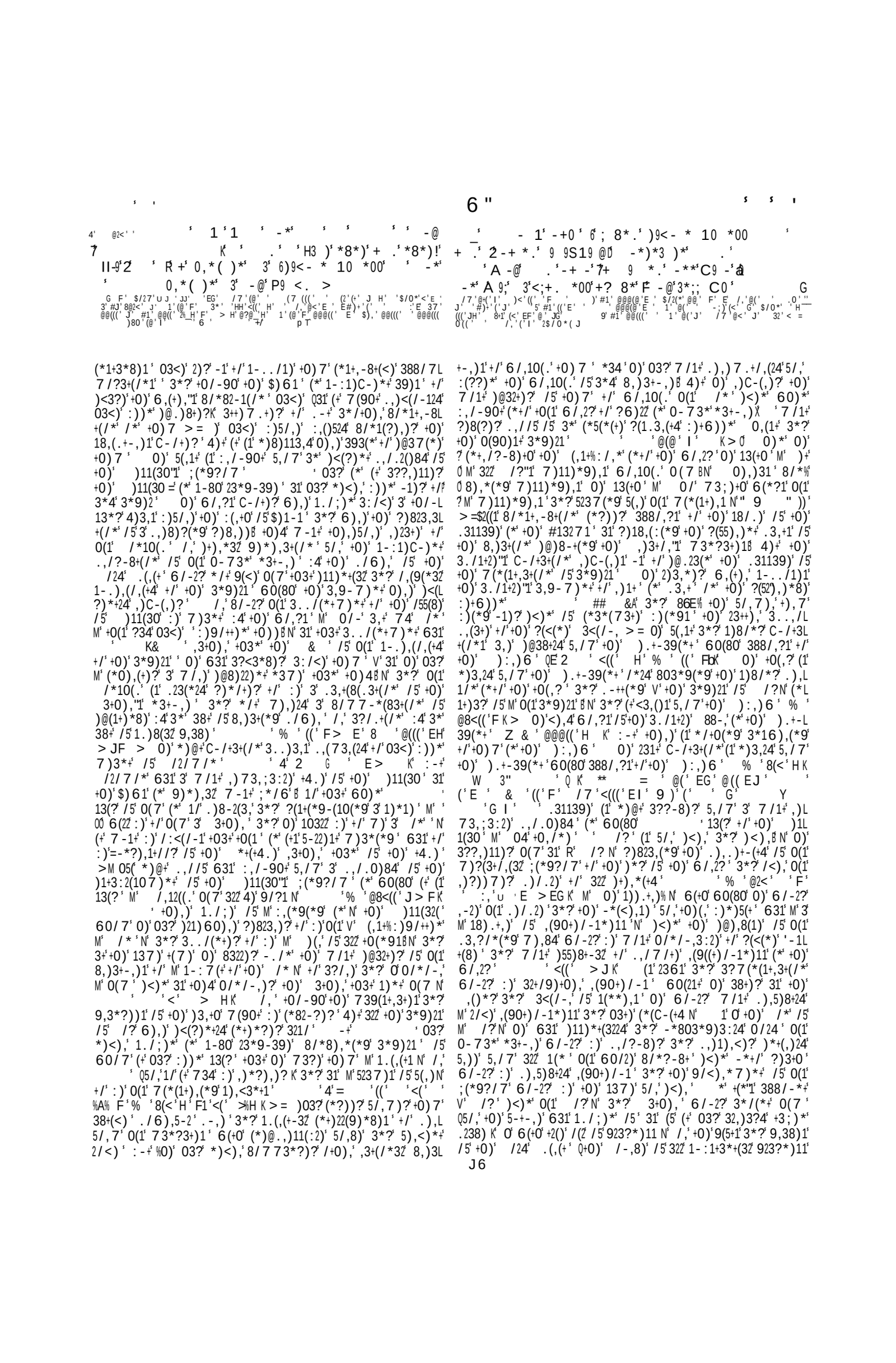


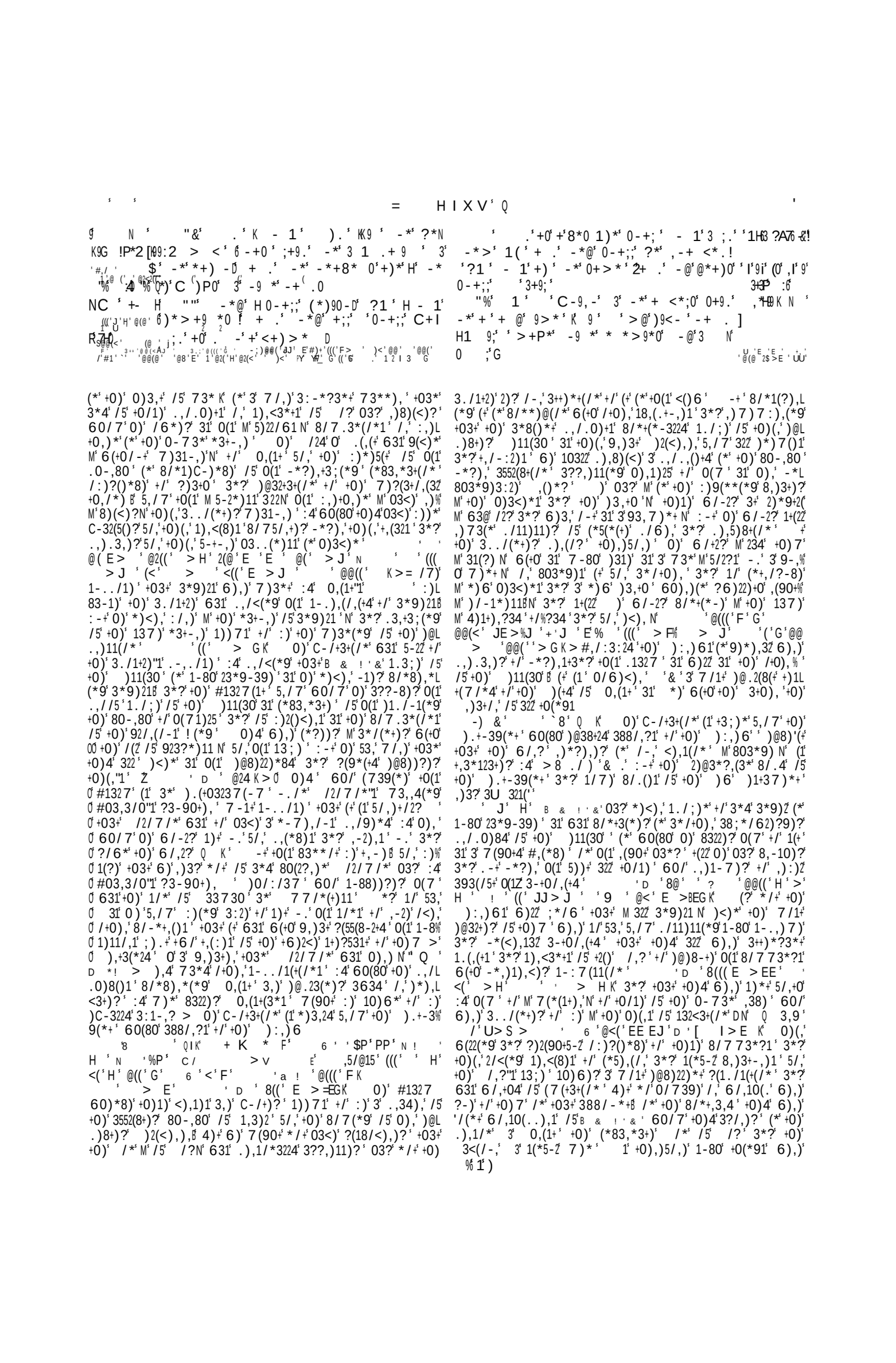


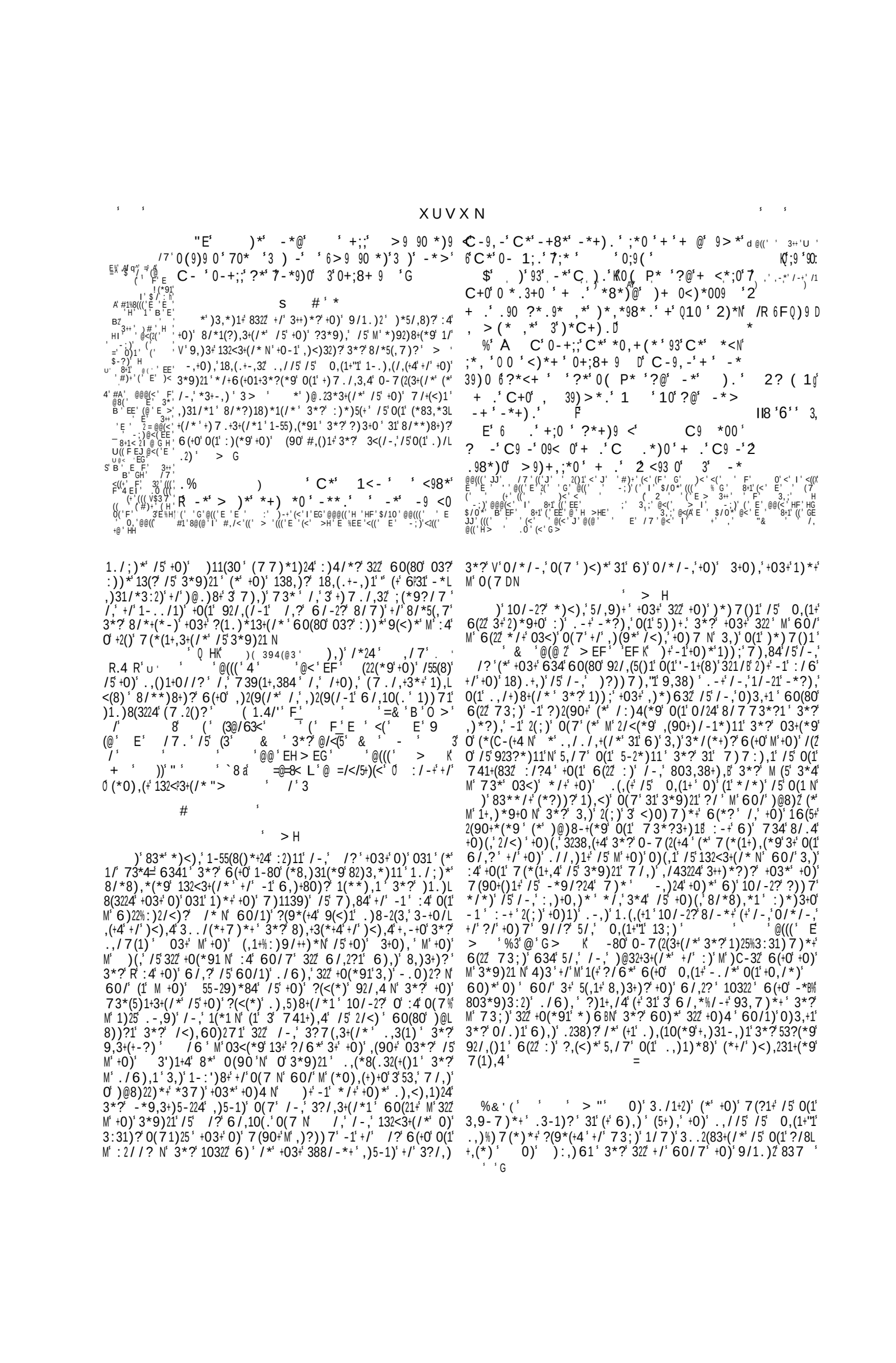


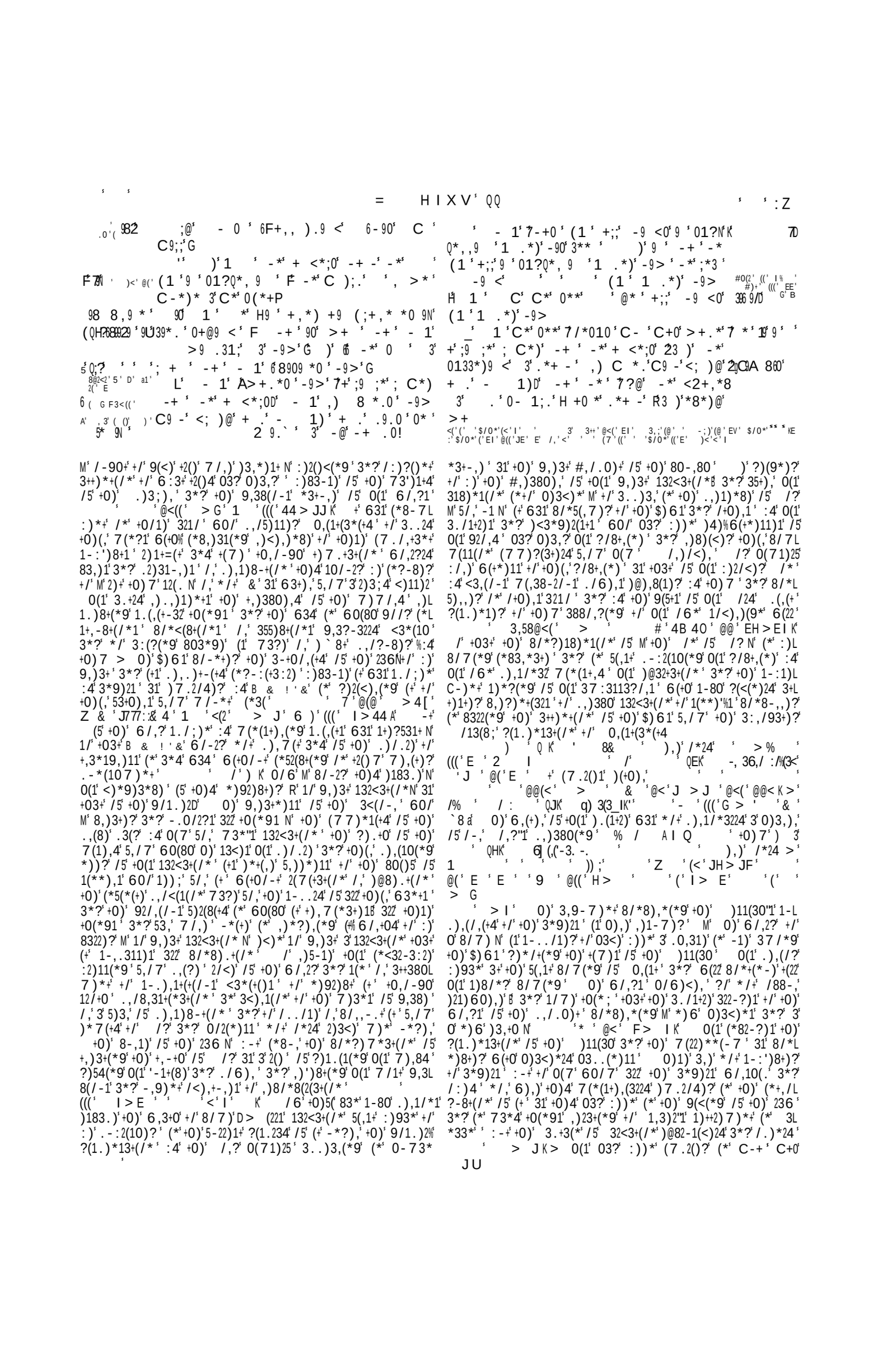
5,/7 6/,2?24 /, 8,(7(*32 7/+(<)1)10/-2? 03<)
+0/-90+ +03+ *)1(7-1"1?).3,+-,)5,/7 0(1 7 31+),6/-2?
03<)":))* 5(*32 3*?0(1 /-,*)4+/ /7),-(*/-1 4)+ +0)
/,? 03? 53,/+0),3*? 7/,)9,38(/-1 .-,./1)1 8/*8),*(*9
0(7 6 E K 3*? 03? 0) */ /<),%,-2)? (* 3
1(7(23,73**),1/7) /5 /-,-*9/?24 .,/')8+1 +0)6,(+),
3*? 73*4 ,)3?),1 734 134 6(+0 0-7:2) 9,3+(+-?) /-,
?)1+,-8+(/* 7-1+ 03<) :)) * +0) (*)<(+3:2) 8/*1)C-)*8)
+0/-90 +0,/-90 +03+ 9,38(/-1(*+),../1(+(/* +0)4)<)*+-3224
.,/<)? +0) /8831(/* /5 /-, :)(*9 :,/-90+ (*+/ +0) 634 /5
132<3+(/* 3*? /5 -1)5-2*)11 0)* 6) ,)3? /5 *)1(7-1"1
8/*<),1(/* 3+ /7) 35+),03<(*9 9,/6* 6/,1) 3*? 6/,1)
31 (+ (1 .,/:3:2) (* #0(2)7/*"1 .(/-1 537(24 6) 10/-2?
2)3,* +/ ?)1.3(,/5*/*) :-+ 1+(22+/ -1) 7)3*1 3*? /55),
.,34),1 5/,+0)7 3*? 6) 10/-2? :))<),,)3?4 +/ ,)8)(<)
+0) .)*(+)*+ 6(+0 +03+ ;(*?*)11 60(80 /? 10)61 +/ 0(1
,)+-,*(*9 .,/?(9321 & @<E > EH K 0(1
10/-2?)1.)8(3224 :) 3++)*?)? +/ (* /-,8/*?-8+ +/63,?1
,)23+(/*1 /,? /7)1+(8;1 60/1) 8/*<),1(/* 10/-2? :)
?/-:24 6)28/7) */+6(+01+3*?(*9 +0)(, .31+ 7(18/*?-8+
+03+ +0)4 734 :) *)3,+/ -1 3*? :)2/<)? :4 -1 0 (* +0)
0 52)90 3*? (* +0) /,? N > (*(1+),1 10/-2? (* 1-80
831)1 2/<)+/ :) .)38)%73;),1 < I K 3*?
+0)4 /-90+ +/ 9(<) -. +0)(, /6* (*+),)1+ (* /,?),+/ .,)L
<3(? 6(+0 /55)*?)? .3,)*+1 /, 731+),1 +/ :) ,)8/*8(2)? +/
+0)(, .)*(+)* 80(2?,)* /, 1),<3*+1 +03+ 1/ +0) 1)<),(+4
3*(7/1(+4 3*? ?(<(1(/* 734 :) .,)<)*+)? :4 60(80 +0)
9/1.)2 (1 /5+)* ?(19,38)? 0)* 1-80 /55)*?),1 03<)
6,/*9)? +0),1 /, /6) 603+ +0)4 83**/+ .34 (+ 734
1/7)+(7)1 :) .,/.),5/,-1 +/ .34 (+ 5/,+0)7 (5 6) 83*
31 5/22/6),1 /5 0,(1+ 60/ 0 :3,) /-,1(*1 (* 0(1 /6* :/?4
/ * +0) +,)) 0-1 6) 10322 :)1+ .,)<3(? 6(+0 /-, :,)L
+0,)* +/ -1) 2)*(+4 3*? 5/,:)3,3*8))1.)8(3224 60)* 6)
?)32 6(+0 +0/1) 60/ /6) +0)(, /6* 1)2<)1N +/ +0) :2)11L
(*9 /5 /? /* /-, 7(*(1+,4 3*? 1-80 .),1/*1 /-90+ +/ :)
,)7(*?)? +/ 2)+ +0)(,2/<(*9 .31+/,1 03<) '/4 /5+0)7 (*
 ,? N +/ ,)5,)10 +0)(, 0)3,+1 +/ 3*16),+0)(, 8/*5(L
?)*8) 3*?)<)* +/ ?/ 7/,) +03* 7/?)1+4 6(.),7(+
+0)7 +/ ,)C-)1+ 0)* +0)(, .,34),1 5/,)380 /(2(), 6(22
:) 7/,) 5),<)*+ 3*? (* 3*16),+/ +0)7 +0)(, 7))+(*91
/*)3,+0 6(22 :) 8/75/,+3:2) 3*? 8/,?(328 :-+)<)* (5 +0(1
:) ?)*()? M +0) 9,38) /5 +0) /,? $)1-1 6(22 :) 6(+0
M +0)(,1.(,(+1 N 3*? +0)4 6(22 1//* 7))+ :)5/,) +0) +0,/*)
+/ '/(* 5/,)<), (* 3?7(,(*9 +0) ,(80)1 /5 ,)?)) 7(*9 2/<)

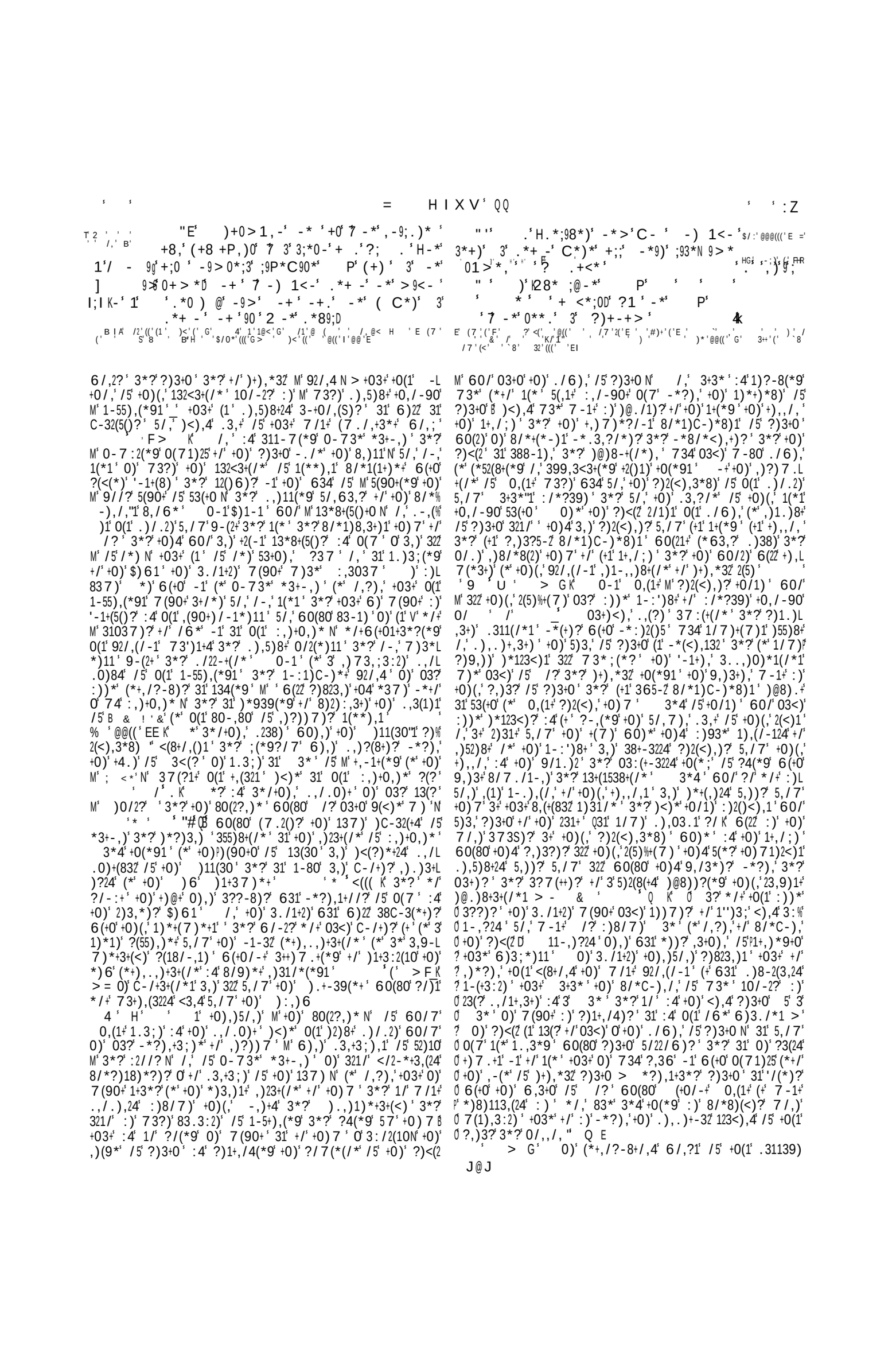


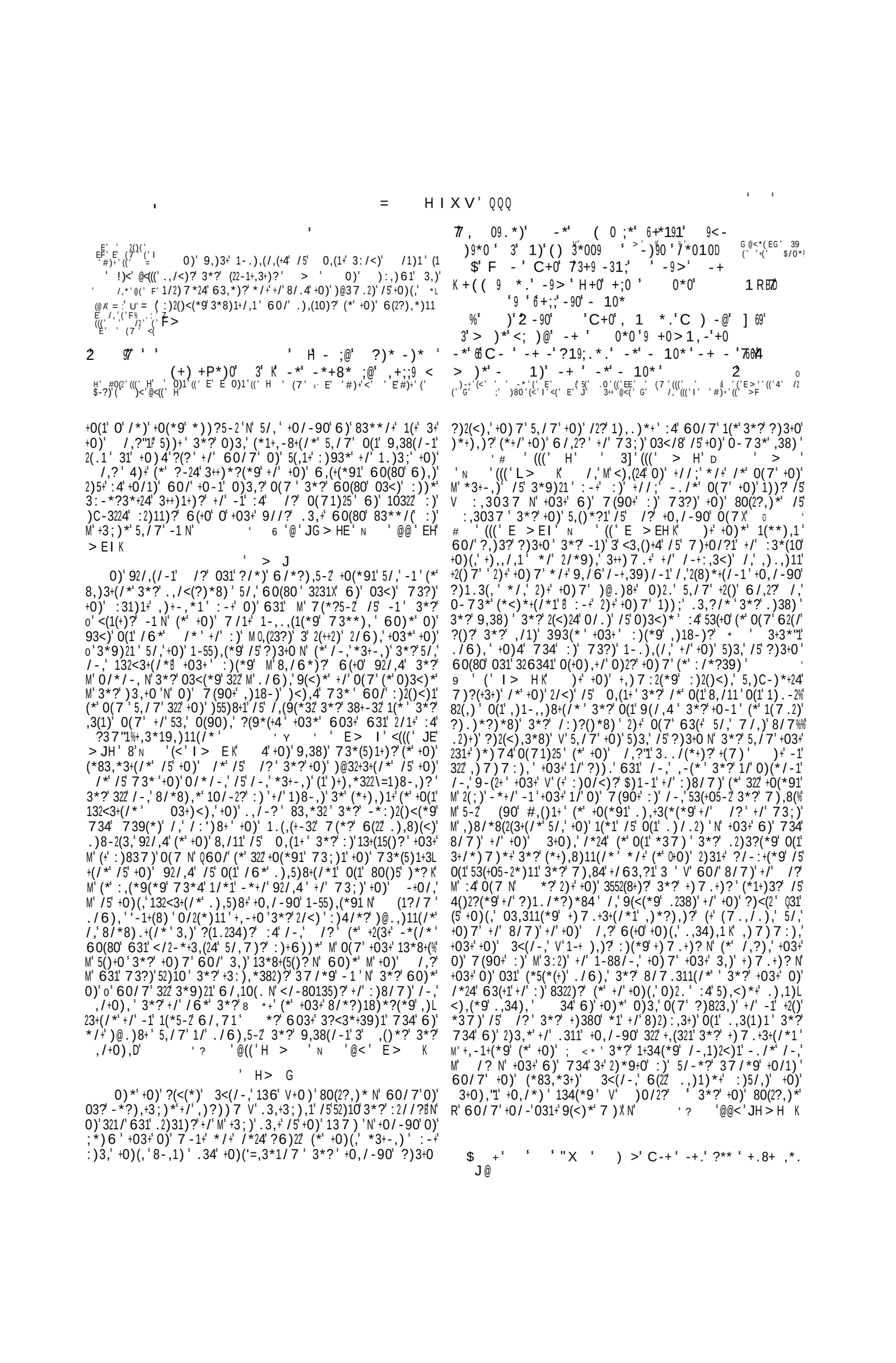


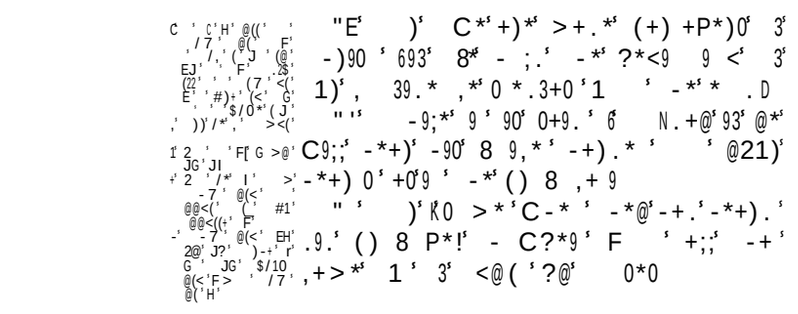


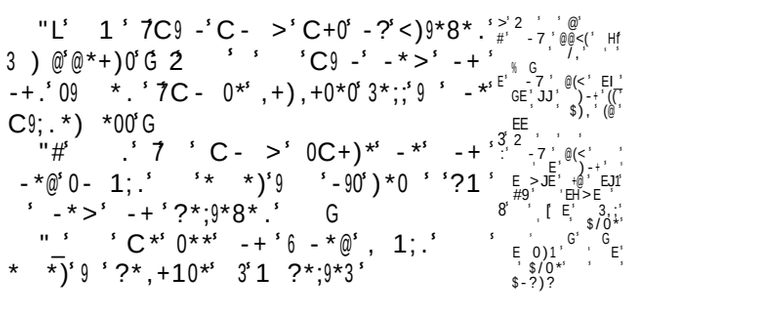


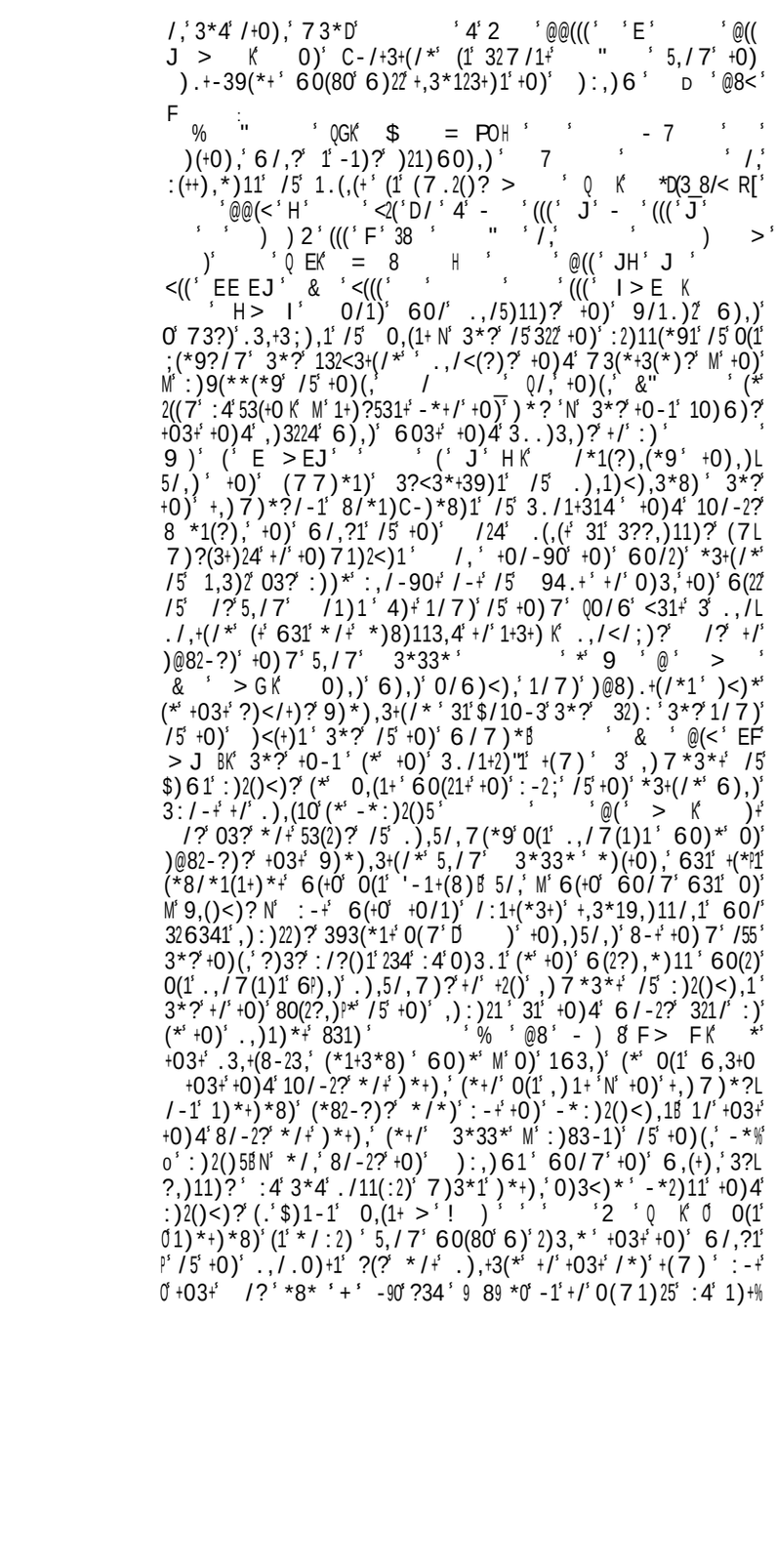


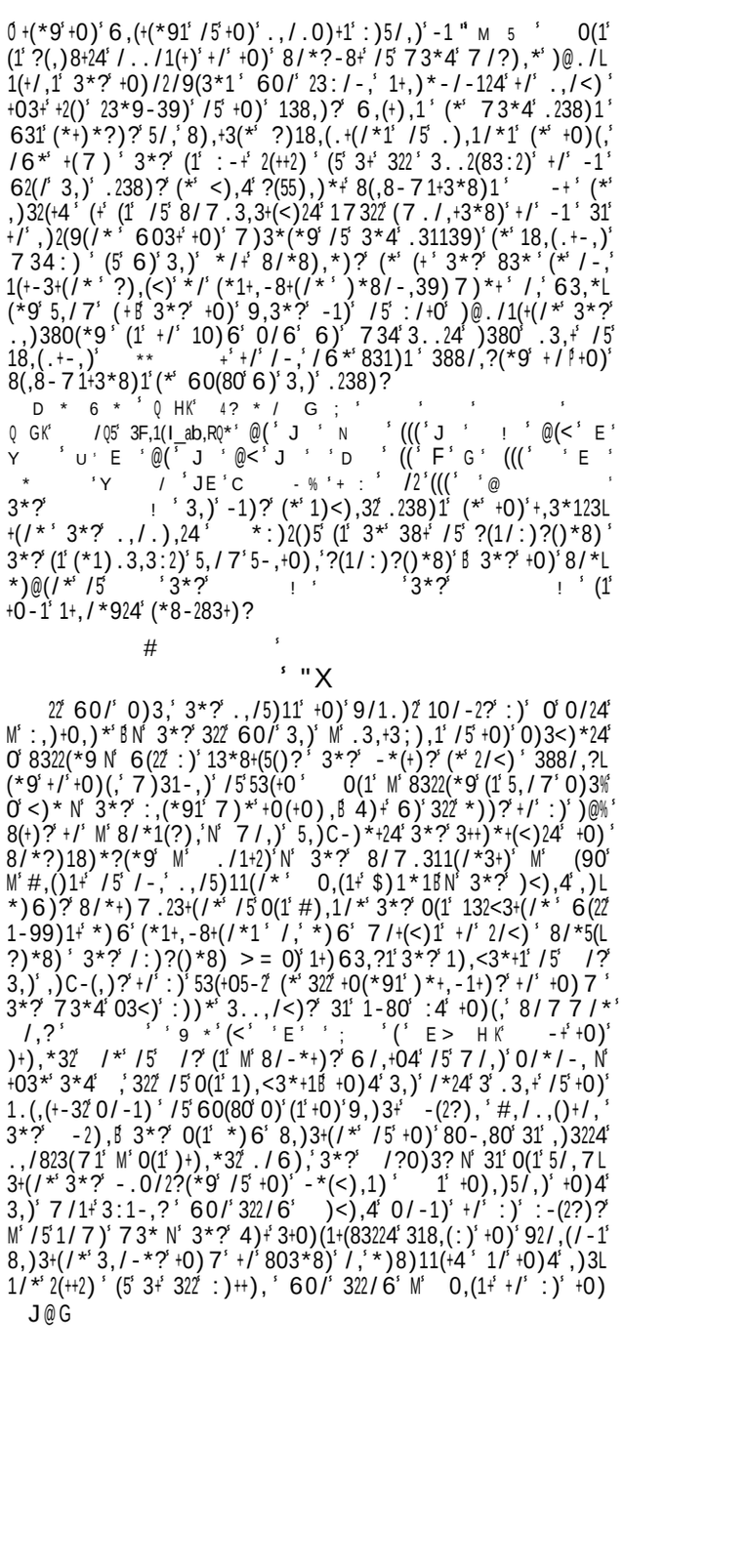


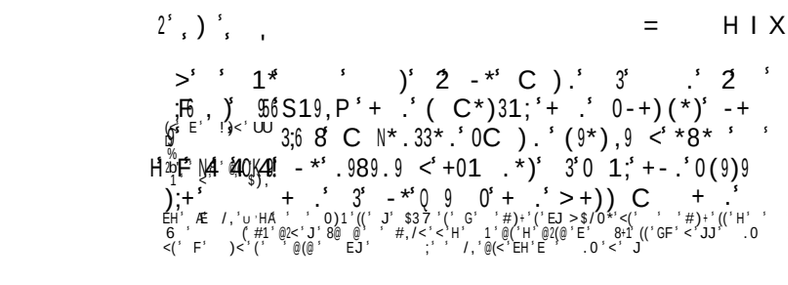


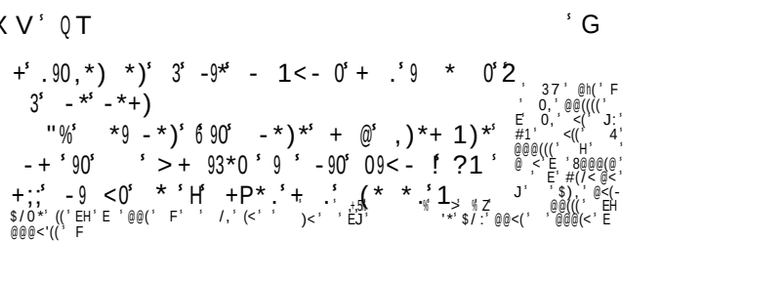


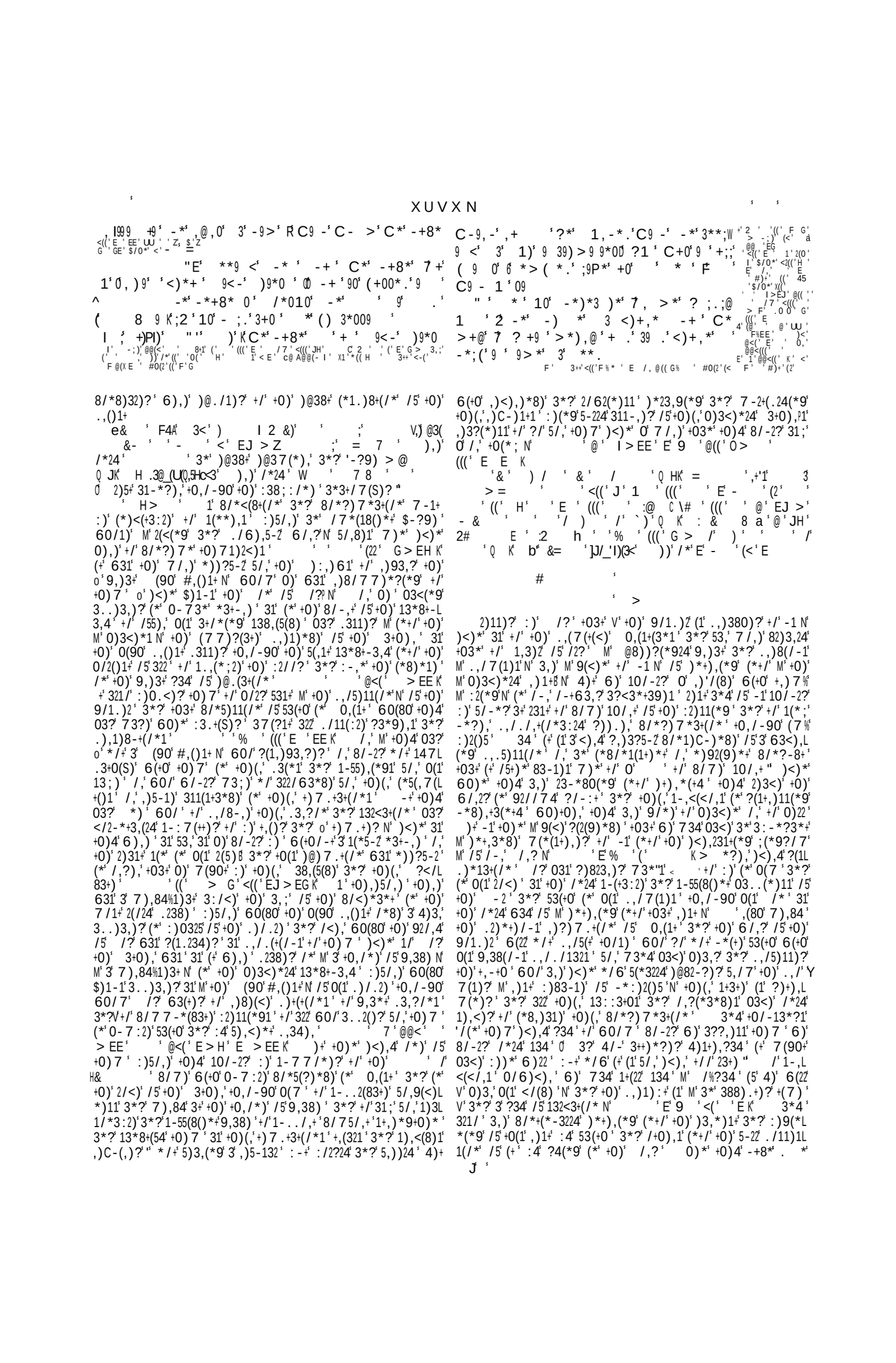












# #

0) 3./1+2) .-,..1)1 +/ 2)3?+0)):,)61 5/,63,?(22 +0) ;*/62)?9) /5 0,(1+ > J)10)61 +0) ?)1.),3+) 1+3+) /53./1+3+)1 H> 3*?(22-1+,3+)1 (: 4 3 1(7(2) /5 :3,,)* 23*?6 0(80 */ 8-2+-,) (7L .,/<)1 F G : -?)823,)1 0(1 53</-,3:2) /.(*(/* /5+0)):,)6 0,(1+(3*1 3*?0(1?)1(,) /5+0)(,5,-(+5-2*)11 3*?(2(9)*8) (* /,?), +/ +0)(,311-,)?0/.) +/ +0))*?) I > E))@.3+(3+)1 /* +0) 1)8-,(4 /5+0) 8/<)*3*+/5 9,38) 31 8/*5(,7)? +/ :,3037 :4 +0) .,/7(1) 3*?/3+0 /5 /?5/, +0) 1+,/*9 8/*1/23+(/* /5 322 5-+-,) :)2()<),1 E > E

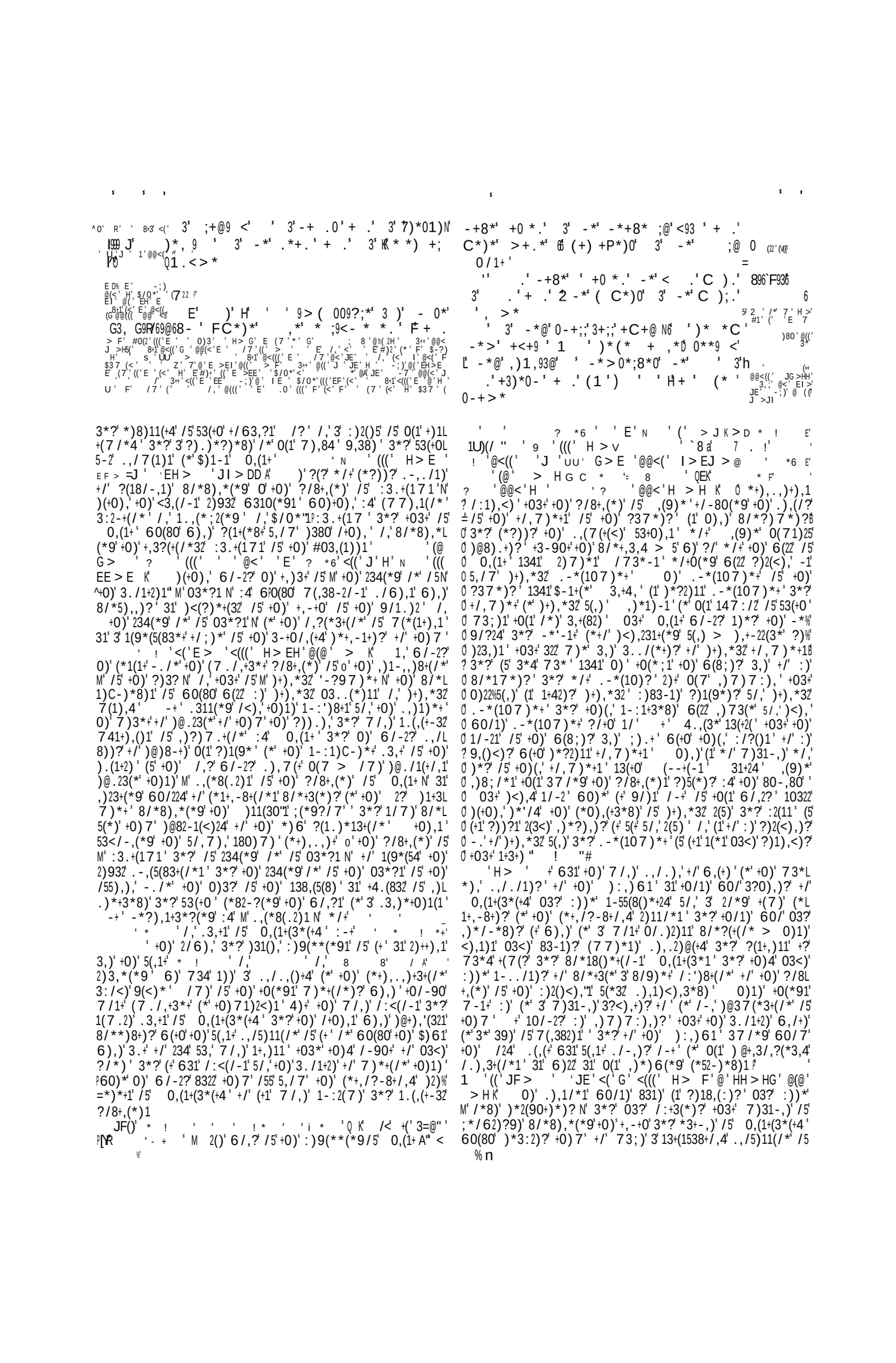
& < a < 7 2)3<(*9 +0) B . , 2 2A 3 2 /* p J= .()1 /5 +0) ?/8+,(*) /5 0,(1+ 2)+ -1 A , / 9/ /* -*+/ .),5)8+(/* * /+ A234(*9 393(* +0) 5/-*?3+(/* /(,) .)*+3*8) X n 5,/7 P?)3? 6/,;1 3*? /5 53(+0 +/% A 63,?1 /? 9' (((E 5 +0) ?/8+,(*) /5 :3.+(1 7 1 P3*? . 2('(1%22 /2' EG' (<' E' $3 7 (' H' #)+ <' * $/0*' (<' E' 8 3++ <((' E ' -;R <(' DD ' /, (' > E' (7 <(' I' E (7 ((' I' ?' 1' <' F S' @<(((' G >GE')80' @((' 3++ (((' E' (<' F' @@(' EI 'GE' 3.' <(' E' 8+1 ((' JG' (22' I' @(' G' @<((' J ' @@',F @@<(' E E' / ' <((' ' E (7 ((' E') (@' H' 32' I >E .0' ((3$/0*' EH' @((' HH' @(<' K' #)+' (' E ' * $/0*' <' > J' 9' (@' ' 3.,' <((' H' G' - ;) @(' J ' > 3++' ((' H' @@' EE EJ @@<(((' I' 3.;!@<(' ' -;) O(' ' @((' ' $/0*' (' GJ' (((' E ' (<' 4' 8-3? ((JG' H' <(((' E' J' ' J >JG' @R' HF' @<(' ' JJ' @(@ E > ' /7 ' <(' G' H' ' /, (A E% F ' > ' E' @((' J' /2' (' E' ' #)+ (((' E' E

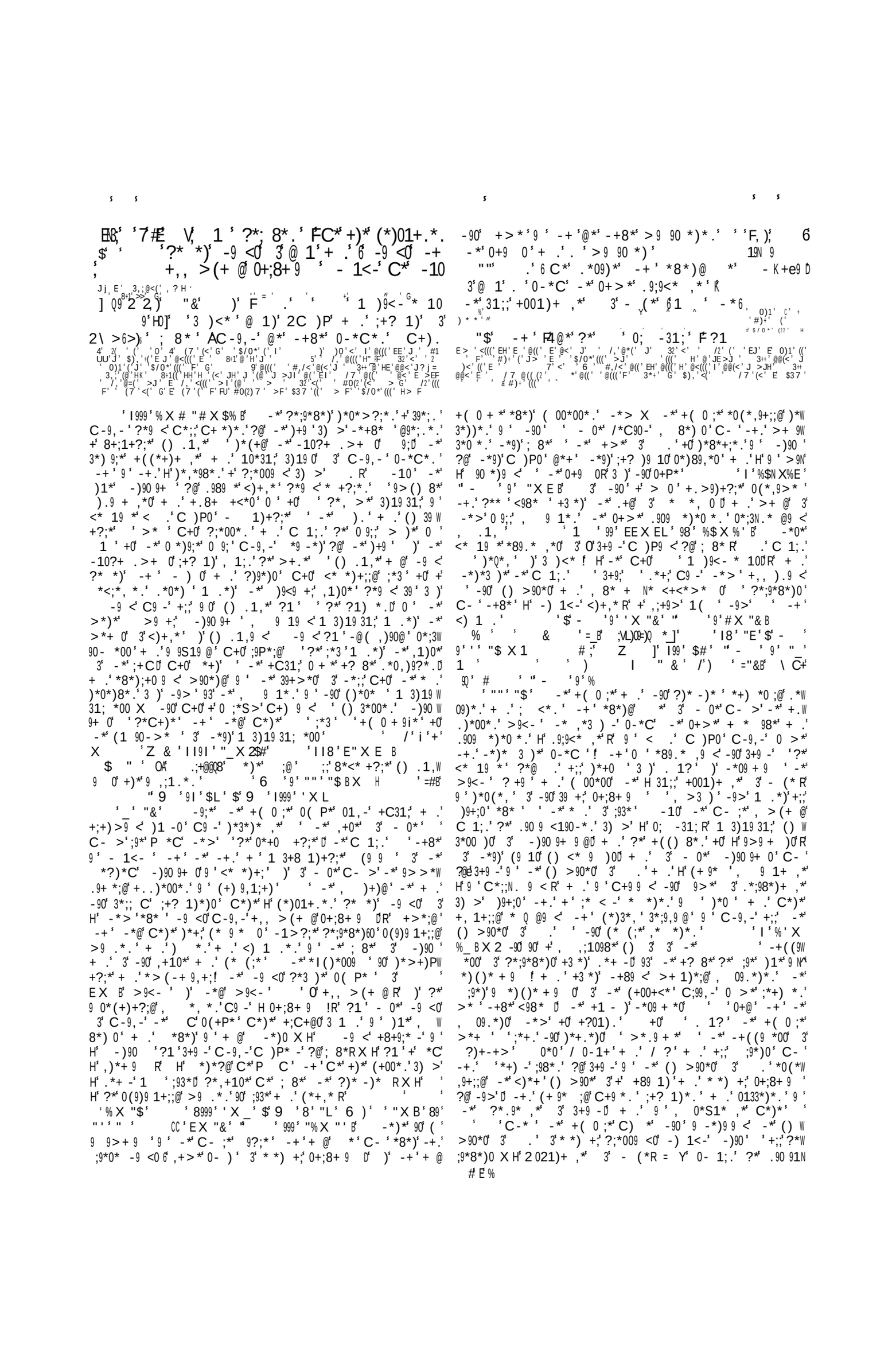
+(/*1 3*?3:/2(10)?8),)7/*()1 > V ! / & < Q JK /41 (A3(Q 4<_'5 ,' +03 6/,?: 4 60(80 7)* 3,)'10)6*+0) 634 /5 ,(90+)/-1*)11 :/+0 M +0) ,(90+)/-1% *)11 /5 53(+0N 5/,' '-1+(5(83+(/* 3*? M +0) 13*8+(5(83+(/* R /5+0) .(,(-*+/ /:)?()*8) N > Q HK 1 1(3-] 9 ((' @(<' % ,) (((' <(' > %) (((' K > / `8 -* .'8) 7 '7 ' 9 ' F[' '6 (((' H ' ' = (((' 45 > 4U ' * ' <(((' K

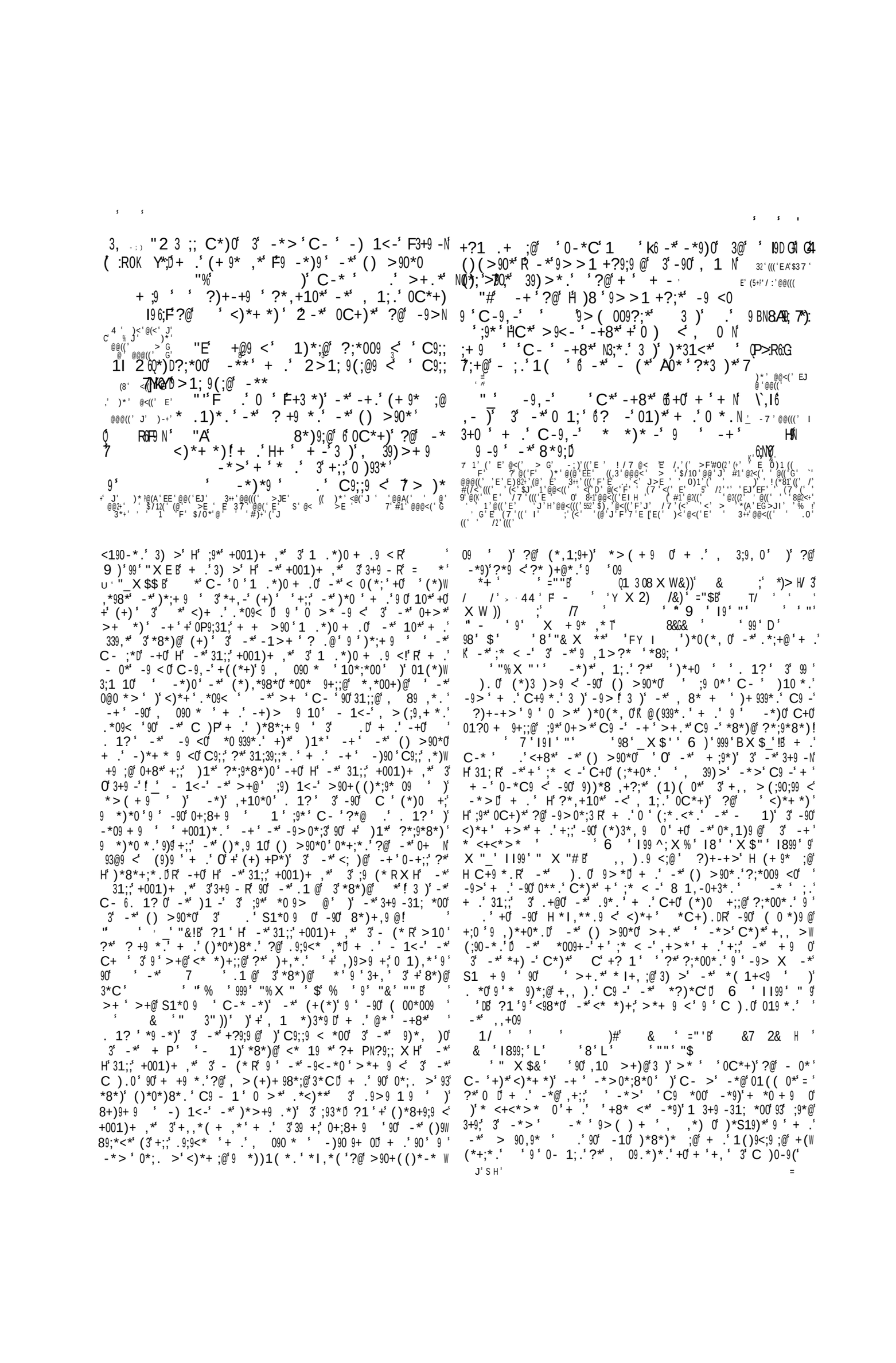
#

322)* 7)* 83**/+3..,/380 /?')@8) .+/* 0 3 7),84% M 1)3+ N%0,/-90 3 0(90 .,()1+ 3*?:4 3 138,(5(8) 5/,'1(* :-+ M 3 .,()1+ 60/ 631 8/7.311)?6(+0 (*5(,7(+4 N 3*? *))?)? +/ /55),138,(5(8) 5/,0(71)25 0/6)<),0) 7(90+ 8/7.31L 1(/*3+) +0) (9*/,3*+ 3*? +,3*19,)11/,1 8/-2? *)<),:) 3*)55)8+-3 3?</83+) 6(+0 /? 5/,+0) 7 *?)))?(* +0) 7/,) /,?(*3,4 6/,;' /5 +0) 7(*(1+,4 +0) 8/*18(/-1*)11 /5 / ,' /6* 1(*5-2*)11 3*? -*6/,+0(*)11 (1 6)22 1-(+)? +/ +)*?),'-1 +)*?),' +/ +0) 6)3;' +0)),,/*)/-1 +0) +)7.+)?' 3*? +0) 5322)* M 1))(*9 6)'/-,1)2<)1 3,) 8/7.311)? 6(+0 M (*5(,7(+4 BN 3*? +0/-90 +0(1 1),<(8) ?(55),1 6(?)24 5,/7 +03+ /5 +0) .,()1+1 -*?),' +0) 36 4)+ */ 73* 10/-2? +3;)(+ -./* 0(7 +(22 (+ 3..)3,' +/ /+0),' 8/7.)+)*+ .),L 1/*1 31 6)22 31 0(71)25 +03+ M 0)(1 8322)? /5 /?N +/ (+ >% -+ 0,(1+32/*)(1 C-32(5()? 3*? 3-+0/,(S)? +/ :)/-,' (90 #,()1+ 0(1 ?(9*(+4 3*?)@8)22)*84 31 +0) /* /5 /?' 3*? 0(1 3../(*+7)*+ :4 +0) 3+0),' +/ +03+ /55(8) 9(<))55(8384 +/ 0(1 7(*(1+,3+(/*1B 0(1 </2-*+3,4 0-7(2(3L +(/* 3*? 1-55),(*91 R (* +0) ?341 /5 0(1 52)10 60)* 0) M /55),)? -.' .,34),1 3*? 1-..2(83+(/*1N +/ +0) 3+0),' R 6(+0 1+,/*9 8,4(*9 3*? +)3,1 N 311-,)' -1 /5 0(1 +)*?),' 2/<)' 3*? 8/7.311(/* +/ 0(1 3552(8+)? .)./2)' * 3*? +0) 3*L 16),'9(<)* +/ 0(1)3,*)1+ .,34),1 73;)1 634 5/,' +0) 9,3*+L (*9 /5 /-,' 6)3;' 3*? ?)5(2)? .)+(+(/*1 60)* /55),)? (* 0(1 *37) (1 /:)?()*8) (* /-,' *3+-,)')*8/-,39)1 /-,' 3+L +)7.+1 +/ /:)4 3*? /-,)@.)8+3+(/*1 /5 1-../,+ 3*? 8/7L 5/,+ -*?),' 322 +0) +)7.+3+(/*1 3*? 1-55),(*91 +/ 60(80 6) 3,))@./1)?B 5/,' 0 :)(*9 73?) .),5)8+N 5/,' +0(1 9,)3+ 6/,;' M 0) (1 :)8/7) +0) -+0/,' /5)+),*3 132<3+(/* +/ 322 M +0)7 +03+ /:)4 0(7 N -+ 3,) 6) /5 +03+ *-7:),' / 6) 3+ .,)1)*+ 603+)<),' /-,' 5/,7),' 8/*?-8+ 031 :))*' /:)?()*+24 ,)8)(<) 0(1 (*1+,-8+(/*1 31 /-,' #,/.0)+ +,-1+ (* 0(1 138,(5(8) 3*? (*+),8)11(/* 31 /-,' #,()1+' 3*? 73;) 0(1 8/773*?7)*+1 +0) ,-2) /5 /-,'8/*?-8+' 31 +0) 1-:')8+1 /5 0(1 ;(*9?/7 D /+0/1) 60 +0-1 8/7) +/ 0(7 3*? 4(2? +0)71)2<)1 +/ 0(7 3*? +/ +0/1) 32/*) 0) 6(22 :) M +0) -+0/,' /5)+),*3 132<3+(/* N 5 +0(1 9,)3+ (90 #,()1+ 3*? /5 0(1 7),(+1 9,38) 3*? 3-+0/,(+4 7(*(1+),1 03<) 73*4 +0(*91 +/ 134 60(80 +0)4 6(22 */+ :) 3:2) +/ -++),(* 3 .,/.),73**),-*2)11 0 0) 9(<) +0) 7 3 7/-+0 M 3*? 6(1?/7 N 5/,+03+ .-,./1) 3*? 7)*'1 .,)'-?(8)1 3,) 1/ 73*4 3*? 1/ 1+,/*9 +03+ 0)4 3,) 9)*),3224 7/,) ,)3?4 +/ +3;) /55)*8) +03* +/ ,)8)(<) (*1+,-8+(/* /,3,) ./5)11)?0,(1+(3*1)<)* /2? .,/5)11/,1 /5)<3*9)2(832 ?/8+,(*) 1/?/8(2) 31 7(90 :) @.)8+)?B 73*4 3,) 53, 5,/7 +03 1.(,(+-32 73+-,(+4 60(80 (1 .,/./,+(/*)?+/ +0) +(7) ?-,(*9 60(80 +0)4 03<) 3++)*?)?+/ +0) 9/1.)2 *L 1+)3?/5 +)380(*9 /+0),1 +0)4 *))?+/ :) +3-90 +0) 7L 1)2<)1 M +0) 5(,1 .,(*8(.2)1 /5 +0) /,382)1 /5 /?' N +0)4 M *))?7(2;' 3*?*/+ 1+,/*9 7)3+ N +0)4 3,) :3:)1 (* -*?),1+3*?(*9 :-+ */+ (* +)3803:2)*)11 +0)4 3,) M -*% M 1;(25-2 (* +0) 6/,?/5 ,(90+)/-1*)11 N 4)+ +0)4 /5+)* .,)L 1-7) +/ ?(8+3+) +/ +0),(. 31+/,1 0)1) +0(*91 3,) <),4 ?(18/-,39(*9 :-+ 6) 10/-2? 1+(22)@),8(1) .3+()*8) 3*? 7)) ;*)11 3*? 0 1)) ;/-+ 388) .+3:2) 6/,?1 N (* 60(80 +/ 8/*<)4 (*1+,-8+(/*1 (* +0) :)1+ 73**),' 6) 83* 9)? .,/5)11/,1 /5 +0) 9/1.)2 31 6)22 31 :3:)1 (* 0,(1+ 10/-2? :)63,) /5 .,)'-?(8) 3*? .,34 5/,' 3 7(*? /.)* +/ 8/*<(8L +(/* >)/-90+ (*?))? +/ :)9(* 6(+0 1(7.2),+,-+01 3*? 1/ 9,3?-3224 .,/8))? +/ 1-80 31 3,) 7/,) ?)) .3*? .),L .2)@(*9 B 3*? +/)7.2/4 /-,1)2<)1 .)8-2(3,24 3:/-+ 5(,1+ .,(*8(.2)1 :4 3*)@.),(7)*+32 3*? .,38+(832 (7.,/<)7)*+ /5 +0) +,-+0 B +0-1 6) 1032 9,3?-3224 :) 73+-,)? (*'-?9L 7)*+ 3*?)*3:2)? +/ ?(9)1+ 1+,/*9 7)3+B 3*? /-,' 1.(,(+-32 1)*1)1 6(22 :) 03:(+-3+)? +/ 3 '-1+ 3*?)@38+ ?(18),*7)*+ /5 9/1/? 3*?)<(2 60(80 6(22 9,)3+24 +)*? +/ /-,' 1+3:(2(+4 8/75/,+ 3*? 5,-(+5-2*)11 (* +0) 53(+0 /5 0,(1+ %) (I > K %*,%

%& ' (> J 0) 3./1+2) 0),) .,/./1)? +/ 2)3? +0)):,)61 (*+.3 5-22),38C-3(*+3*8) 6(+0 +0) ?)).741+),()1 /5 ,)?)7.+(/* /5 60(80 0) 03? 1./;)* 3*? +0-1 +/ M 9/ /* -*+/ .),5)8+(/* N <' > K *' /,?), +/ +2((1 0) 6/-2? 2)3<) M +0) .,(*8(.2)1 N /,')2)7)*+1 V /5 M +0) ?/8+,(*) /5 0,(1+ N (+0/-+1.)8(3224 *1(1+(*9 /* +0)1) +0(*91 0) (7.2(8(+24 ,)C-)1+)? +0),(' 3++)*+(<) 3*? 83*?(? .),-132 /5 0(1 3,9-7)*+1 /* /+0),' 1-:')8+1 1-(+)? +/ (7.,/<)7)*+ /5 1-80 31 6),)' */2/*9),' :3:)1 (* 0,(1+ ' (<' H > K 0) *)8)11(+4 /5 M ,).)*+3*8) 0 5,/7 ?)3? 6/,;1 N 1-80 31 3,) ?/*) :4 7)* ?)3? (* 1(* 3*? 60(80)@./1) +0) 7 +/ +0) 8/*?) 7*3+(/*Z/5)+),*32 ?)3+0 631 (*?)) ? 5-*?37)*+32 +/ +,-) 0,(1+(3*(+4B :-+ +0)4 03? :))* (*1+,-8+)? (* (+ 5,/7 +2() 5(,1+ ?36*(*9 /5 +0) *)6 ?(1.)*13+(/* (((' 4 F > (@ > J K /,' 6/-2? 0) 1.)3;' .3,+(8-23,24 /5 +0) *3+-,) ' 4 G







(' '

/1)1' 10/-2?' :)' ?(13**-22)?' 60)*' +0)')11(30' .),5)8#' 1+3+)' /5' +0)' 80-,80' 3*?'5/,' +0)' 132<3+(/*' /5'322'
837) ' +03+' 3' :)++),' 8/<)*3*+' 3*?' .,()1+0//?' 7(90+' 60/'8/7)'+/' /?':4' $)1-1' 0,(1+' +/' +0)' -++),7/1+'
+3;)' .238) ' > G' 0(1' 631' *))?5-2'5/,' +0)' 7/,) 3*?'5/,')<),' I>EG

0' -9>' ' + ' (* '0-+>*D R' +0' 93' 1(')9+;' -*@' 3 1 .' - 9 <' 9 ' -90' 0+;8+ 9 ' C) -@' 3' -*9)' , 0 + ')*<+).:' ' <* *)+;' C*' 0- 1;.' C+) ' + .' ()+@' 3)' 01,-' (*)0 0D ?1 ' -*)*' +)*' ,+0*0' 9 ' C-9,-' C*' >10' ;* ' -*>' +; *' +0' -+89 <' ' () 0(*, ' 3' -*9)' ?*9 <' F')* *C*.' ')*(* N + ,* R' *' 0- 1;.' ?*C+)*' + .' C*' 1<-' ' ,+1 9 ' -*)0' 3' *8*)@' +(() +,-' '0')*>* . 10' +' ()*,9(9,*' ! @*'9' . 9 <' -90' C*' 0- 1;.' P**(' ,; 0*' ' -*' C).' 3' .' + .' ?*' ,+)*31;' ' 'C 1 .' + .' *))93@' -*' C*+P')' .90, 1)+<*' -*' 3+;:* ' + .' (* 9 * X \ C;*.<*' <93 0' , 89, 9 0' + .' 8*)@' 0) <' 9>()*009 0' >10' .')' 0+' +(0 +0@' 3' -90' P9 .',+ ' +P*' (;+,*! <)*+' ?0 9W +,@' + .' >+;9< 9 @' & '/)) ' ?*3)*' C*' +)*' C+))+ *.' ' , ,;1.*' '/)')'/)' -*' <* *)+;' 9 89 + 9 0' + .' () >90*0' 3' -*' < 0(*;'9 ,;1.*'+;;' C- '+)*' -1>?;@' C9;;9 <' ' *>?)+,*' -*>0' -1>9;9+ 9 ' + .' 0*;3N, .*> + 9 ' C-*' '1 9 *.' C9 -' 0 >*' - (*' + .' ,)9*0' 3)' >*),@' +)*' 01,-' P* 0' 3' . 0' 0')* *C9 <' +' >+ ' ')*(* + ,* R' '+0' 0- 1;.' ?*' (9 *.' 1' ' -9>0' 3)' -90' * , 1)+<*>* ' 9 ' *I(*, 9 <' 3)<98* *00' ' -*' -*)' -+ .' -*' 0*;3N, 39W .* '0- 1;.' ?*' +1<- ' -+' P C;*.<*' <93 0' *)))0' 01?W 0*S1* 'Q @0' + .' -9<-' +33*, 9 0' +)*' ,*) +9 ' *89.* ,*' 3' +' >+ '0' , 8*)09 D C9 - 1' ?) P* *00' 3' -*+) ' -+)*.' 3' 09 ' +' 0(9)9 1+;' >9 .' + .' H' 3+9 -' C-9,-' C)P* -' H' ?@'; 8* R' 1' - 0*' C- >' 9' 90' 9 .**.' H' 9>(009?;*' ')* *C' 1 ')*(* + ,* R' +)*' , >> ;@' -*' ;+0' ' -9 P' -*>0*;8*0' 9 ' 0' +C31;' +' 0 + *! + .' 01,-' +0' +)*' >0' -+)+00*.' ?@' 3*+)0' 3' -90' P9 .' >+@' <* *)+;;@' ?*' +001)*.' -+' -90' 90' ' -*9)',+0*' C-+ *8*)' -*@' +8*' ?** ')' . *!' 1 ;*00' -*@' +, 1+;;@')1 ' 9 ' 1 < .;9 *00' + .' C9,P*. *00' -) 1<-' +;' .*0(*)+ 9

' LX "$

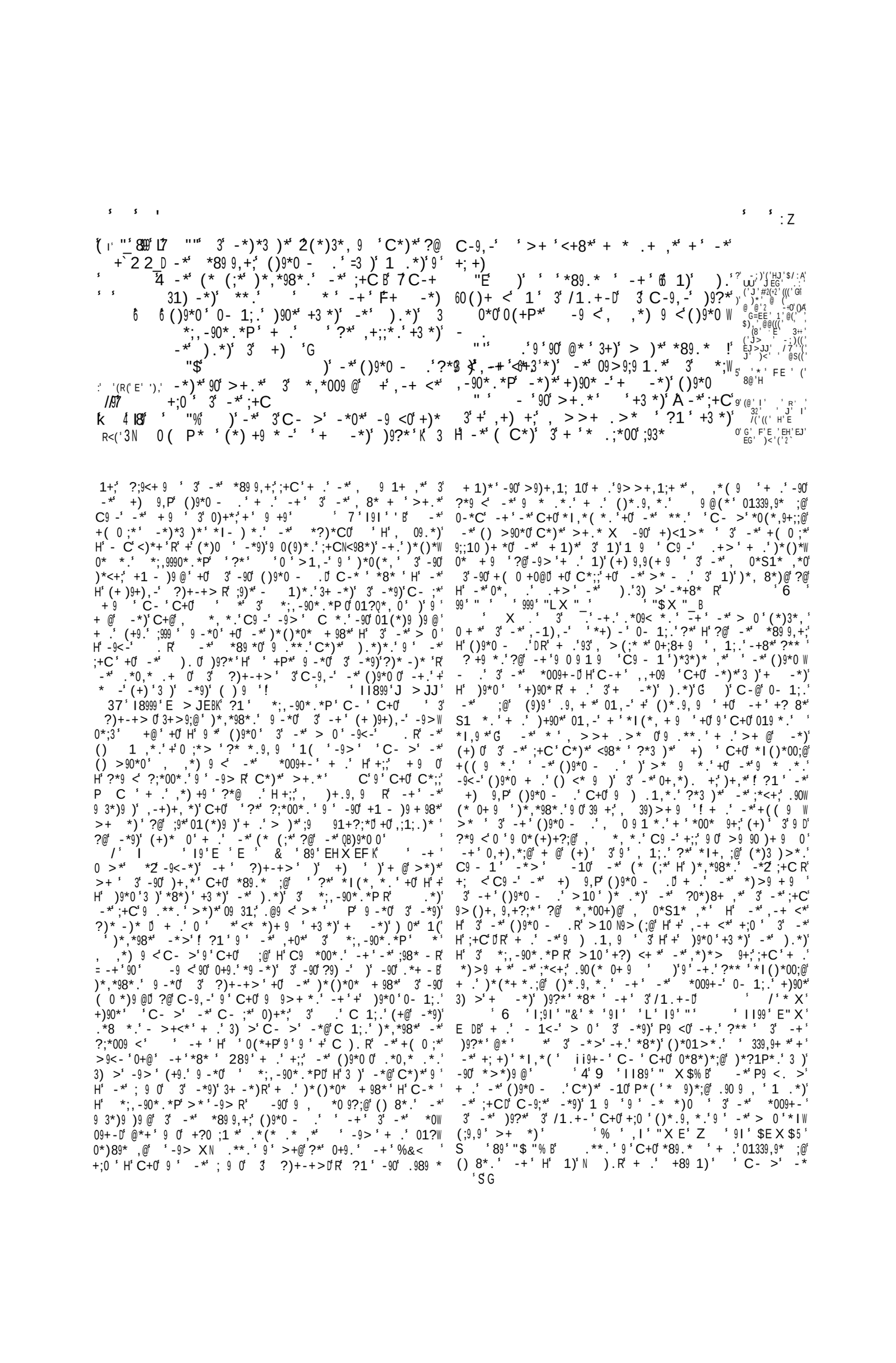
' *<;9<* ' + .' 1 3)19 31;' () 3*009 ' 3' -*' < 0(*;' * .0' .9)*, ;@' ' -*' ?)9 P' 3' -+' .)*+.31;' ()*,9(9,*'+? 8*' .*0,)9?*.'! 3)' C-* '+?1 .+ ' >*+ 0' 3' <)+,*' + .' *8* ' -*').9 +)@' 0)989 <0' 3' -*' , 89 ,9 <' (9)9' 3' .' ;*+8*' >* ' 1 ,-+ <*.' + .' () .1,*' ' - 0*' 3)19 0' 3' - ;9 *00' C-9,-' () 8*' -+' -*@' -+8*')*,*98*.' ?;*009 <0' 3) >' .' + .' +)*' ?;*00*.' 3' -9>' D -*@' +)*' 3 * ' <98* ' 1(';9P*' C+0 *' ;+ .' ' ?*+)' ?)9*)0' + .' -) 0' ;@D' -*9)' 0 + *' 90' 9<-' 1 ' ,1)09 <D + .' -*' * .' 3' +;;' 1 3)19 31;' () 3*009 ' C9;;' ?*' H' -*' 31) +,*' 3' 39)*' C-*)*' 90' C+9;9 <' H' + .' < +0-9 <' 3' ** - RX2 *' 10' -* '3*+)' C9 -' -1>?;*' ,+1 9 ' + .' C+ ,-31;' ()+@*)' 9 ')*0(*,' 3' 1)0*;8*0' D + .' ;*' 10' - (*' -*' ?*0' 3' -*)0' -+' -*',+0*' C9;;' +, >9 ' 3' -9;0 'C*' C+) ' 01,-' +0' +)*' 9 ' *89.* ' .+ <*)' C*' 0- 1;.' '* , 1)+<*' - 0*' 9 ' C- >' C*' Q1.<*' -+' -*' H' -9 <0' H' C-9,-' +,, >(+ @' 0+;8+ 9 'R' +)*' 3 1 .' 9 90 *)0' 0- 1;.' 3)*S1* ;@' 0(*,93@' -*0*' 9 ' + ' *I(*)9>* +;' + .' .90 9 <1990-9 <' >+ *)! + .' 9 ')*0(*,' 3' -*>' +;;' 0- 1;.' *I+>9 *' -*>0*;8*0' 3)*S1* ;@' + .' 0*)9 10;@D 9 0*+.' 3' (*)(;*I9 <' -*>0*;8*0' +? 1' - 0*' *I 0' C-9,-' C*)*' 9 W 0*) *.' ' 0*)8*' +0' ?*+, 0' ' C+) ' -*' ()*01>(1 10' +<+9 0' 3+ +;') ,P0' + .' ' +33)9<-' -*' -1>?;*' + .' ,+1 9 10' 3' - 0*' H' -9 <0' C-9,-' +, , >(+ @' 0+;8+ 9 R' *' 90' >)*' 3)**' 3) >' +>?9<19 @' -+ ' ;+?)9 10' 0*;3N' .* @9 <' ; 8*' ' -*' +>*' 3' -*'). ' 0-*C ' ?@' >; 90N' H' *)9 <'R' C9 -' (*)0*8*)9 <' +33*, 9 'H' '-90' 0+9 0!R' + .

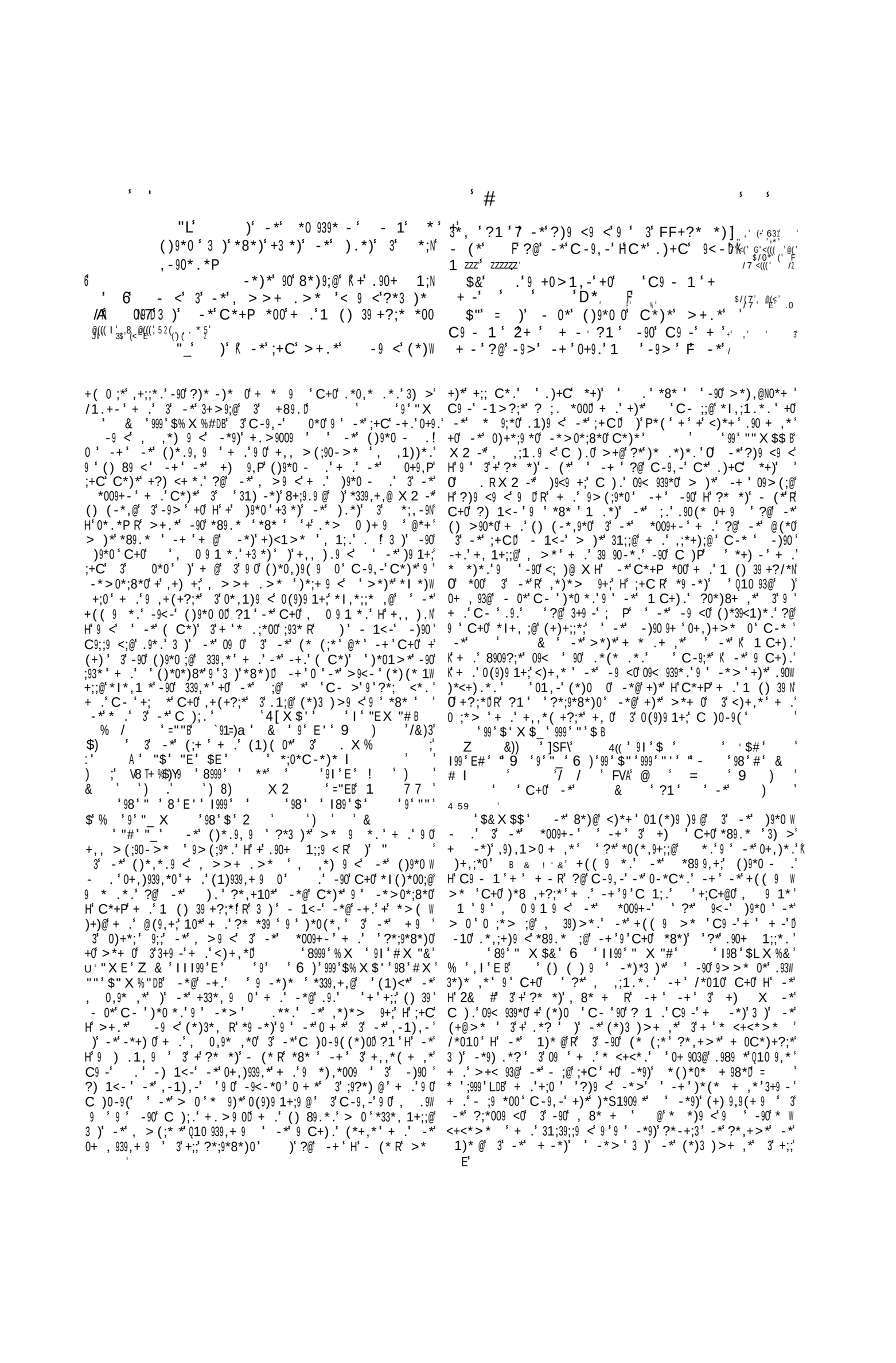
- 1<-' .' 90' ' >+ 0' .*?)' + .' 29;;')*C+).' ' C)P^' C-9,-' () ,**.' 3) >' ()9.*' + .' 0*;3N)9<- * 10 *00' - C*8*)' 0(;* .9.' + .';+?)9 10' -*@' +)*D @*' 0' -*' 90' ' 1)9<- 7' H' * 10!R')' C9;;' -*' 3)<*' *' 0*)89,*' C-9,-' 0()9 <0'3) >' -1>?;*' <)+ *31;' ; 8 ' *' -+0' 0(P* ' + .' -*' C9;;' ?*' +0' < .' +0' -90' C). ' -+' ' +' ,1(' 3', ;.' C+ *)' <98* ' ' H' +' .90,9(;*' R' 3) >')*<+).' ' -90'). ' H' 0-+;;' 9 '+ @' C90*' 0' ; 0*' 9 0')*C+). R' ' ' I ' E& X E$' I18' #E X 4 E& B' *' 0- 1;.' -*)*3)*' *+) *0 ;@' .*09)*' -+' C*' + .' +;;' C- ' +)*' ,+;:*.' -)90 9+ 0' >+@' 0' <98*' -*'2' 0+>*' .9;9N' H' <* ,*' R' 9 ' 01,-' < .' C)P0' +0' -*' > 0' *>9 * '0+9 0' 9 ' -*' ()9>9 98*'+<*0' .9.' -90' 90' -*' 0,)9(1)+;' C+@' 3' +,W S19)9 <' + .' ()*0*)89 <' H' -*' 31;;' +001)+ ,*' 3' - (* R' ' -*' * .' 3' 1)' ;98*0' + @' -+8*' -10' H' ?@' 3+9 -' + .' H' (+ 9* ,*' 9 -*)9 *.' -*' () >90*0D R' ?1' '0; -31;' () W 3*00)' 3' -)90 9+ 9 @' -+0' + @' *89.* ,*' -+' -*' 90' 3 ;; C9 <' -*>' ' -*+8*

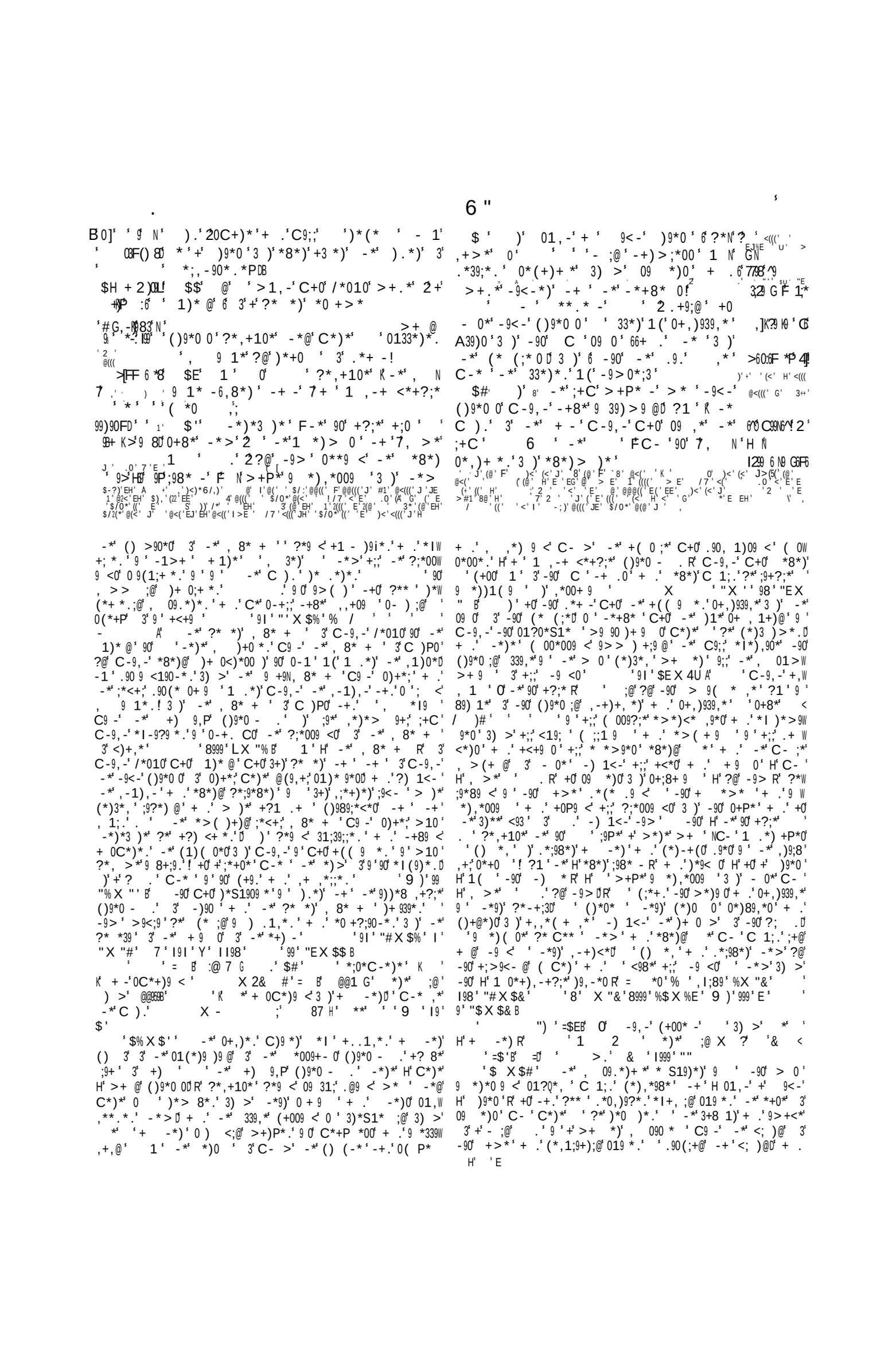
' "%X "#

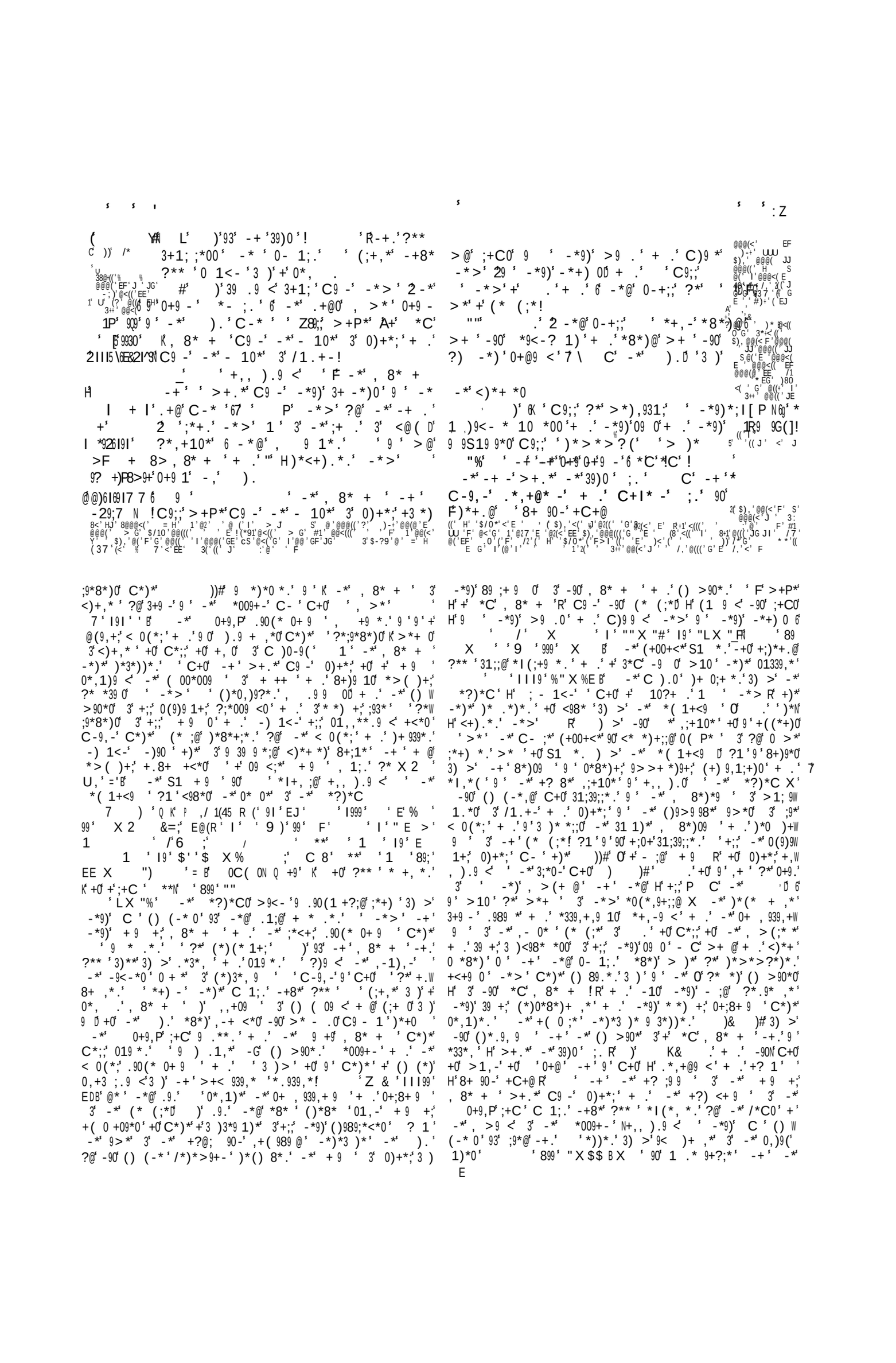
-*' ()989;*<*0' 3' -*' < 0(*;'?*; <' ' -*' .9;9<* ' + .' 3)19 31;' C-' C+;P' 9 ' -*' 0 *(0' 3' ?)+-+>' ' C- >' -*' () >90*0' C*)*' >+.*' -*0*' ? +9 ' + ' 9 C+).' *0 9> @' ?@' -*' (C*)31;' (*)+ 9 ' 3' -*' ;@' (9)9 D' + .' <98*' +?1 .+ ' () 3' 9 ' -*9)';98*0' -+' -*@' +)*' 0' -*' ,-9;.)* ' H' 3' ?)+-+>' + .' -*9)0' +, ,).9 <' ' -*' () >90* R' -90' 9 C+).' 0*+;' , 39)>0' ' -*>'))# -+' , 8* + ' C-9,-' .' -+0')+ 939*.' 0' C9 -' + ' + -' ' -*' -*9)0' 3' () N' H' >90*' R' 9 '<* *)+;' *,+10*' -*9)' 9 39)>9 9*0' +)*' >+ @' + .' -*9)')9+;0' <)*+ ' -*9)' , .*0,* .9 <' + .' , >W (+009 + *' + -*)'90' H' C9;;9 <' >)*' +?1 .+ ;@' ' 0-*C' H' -*>' -*' 9>>1 +?9;9 @' 3' -90' , 1 0*;D R' -+ ' ?@' -90' 3+9 -31;' C).' + .' 9))*8 ,+?;*' + -' F' -*@' >9<-' -+8*' +' 0' 0) <', 0 ;+ 9 ' -+89 <' 3;*.' 3)')*31<*' ';+@' - ;.' ' H' -*' - (*' 0*' ?*3)*' -*> R' .**.' -*'). ' -+89 <' H 0C) ' ?@' -9>0*;3' -+' -*' -+ -' ' (;*+01)*' 9 ' -*' H' .*+ -' 3' +' 09 *)' ?1' -+' -*' 0- 1;.')*(* ' +.';98* ' - ;.0' 1' +?1 .+ ' * * 1)+<*>* ' ' +;;' C- >' -*' H' C+) 0' '3;**' 3) >' -*' C)+ -' ', >* R' + .' 9 89 *0' ' H' ;+@' - ;.'3)')*31<*' ' -*' - (*' 0*' ?*3)*' -*>' . +0' -*' H' ,+ ';9* R' -*' .*0)1, 9 ' 3' -*' 1 ?*;9*8*)' +.' -*' 0+;8+ 9 ' 3' -*' ?*;9*8*)' +)*' +;9P*' ,*) +9 ' *' -*' 01,-' +0' -+8*' 3;*.' ' -)90 ' +.' -+8*' -*9)' - (*' 0*+;*.' ' -*>' H' ?@' -*' ; 8*' 3' .' 0-*.'+?) +.'9' -*9)' -*+) 0']' ?@' -*' ;@' (9)9 R')*;@' , 39.* ;@' ' -*' (C*)')1 -' >*),@' +. ', 8* + ' 3' . ' +>9.0' +;;' -*' ((W 09 9 ' 3'*+) -'+ .' -*:;' ' $ ' 8' %X '' 8999' "' X ' $# X %_ B' *' -*>' ()+@' 3)' 3+9 -' + .' - (*' *S1+;' -*9)' 0*,1)9 @D -10' ;*' -*>' H ,+0' + ,-)' C9 -9 ' -*' H' 8*9; R' 0 +@9 <' -*9)' 0 1;0' ' -*' C).' 3' . ' + .' -*' >*.9+ 9 ' 3' -*9)' <)*+' 9<-')9*0 ' 9 ' +;;' .+ <*)0' +33;9, 9 0' + .' *>(+ 9 0D ;*' -*>' 3 ;; C' -*' 0 *(0' +0' C*;;' +0')10' 9 ' -*' >*)9 0' 3' -*<)*+')*N)1 *)' 3' -90' (* (;*' *' -*>' ?@' 3+9 -')*+;9i*' -90' +((*+)+ ,*' ?*3)*' -*' + -*) 0' ;9) *' 3)' -*>' +0' -*9)' , 0 9 1 *.' 9<-')9*0' + .' \ 9 <! 3)' C-9;*' - 0*' C- ' < '?*3)*' '*+) -' ' ()*(+)*' -*' C+@' + .' >+P*' +;;')*+.@ 3)' -*)0' +)*' , >W > ;@' 9 ' >+ @')*0(*, 0' <)*+ ;@' -*9)' 9 3*)9)0D 1)' H')*N' H')1 *)' R' 90' -*' H'). ' 3' - 0 0' -*' \ 9 <' ' <;)@ R' H' .' >+ 93*0 *.' 9 ' -*' 3;*0- R' '% ' II98' ee "& & ' ' L XL_' '9' "' $% ' 98' LX "&' " -

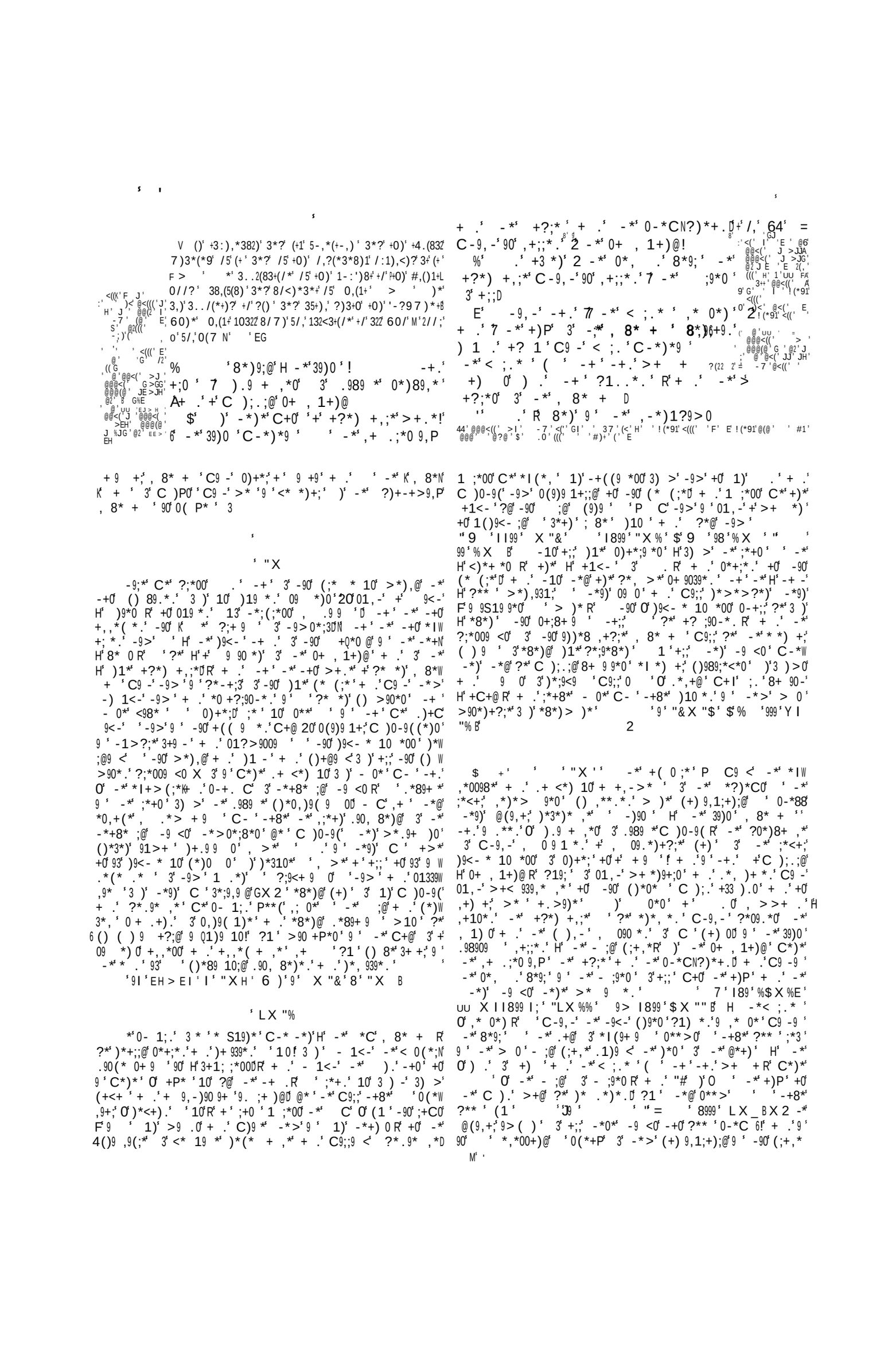
JS

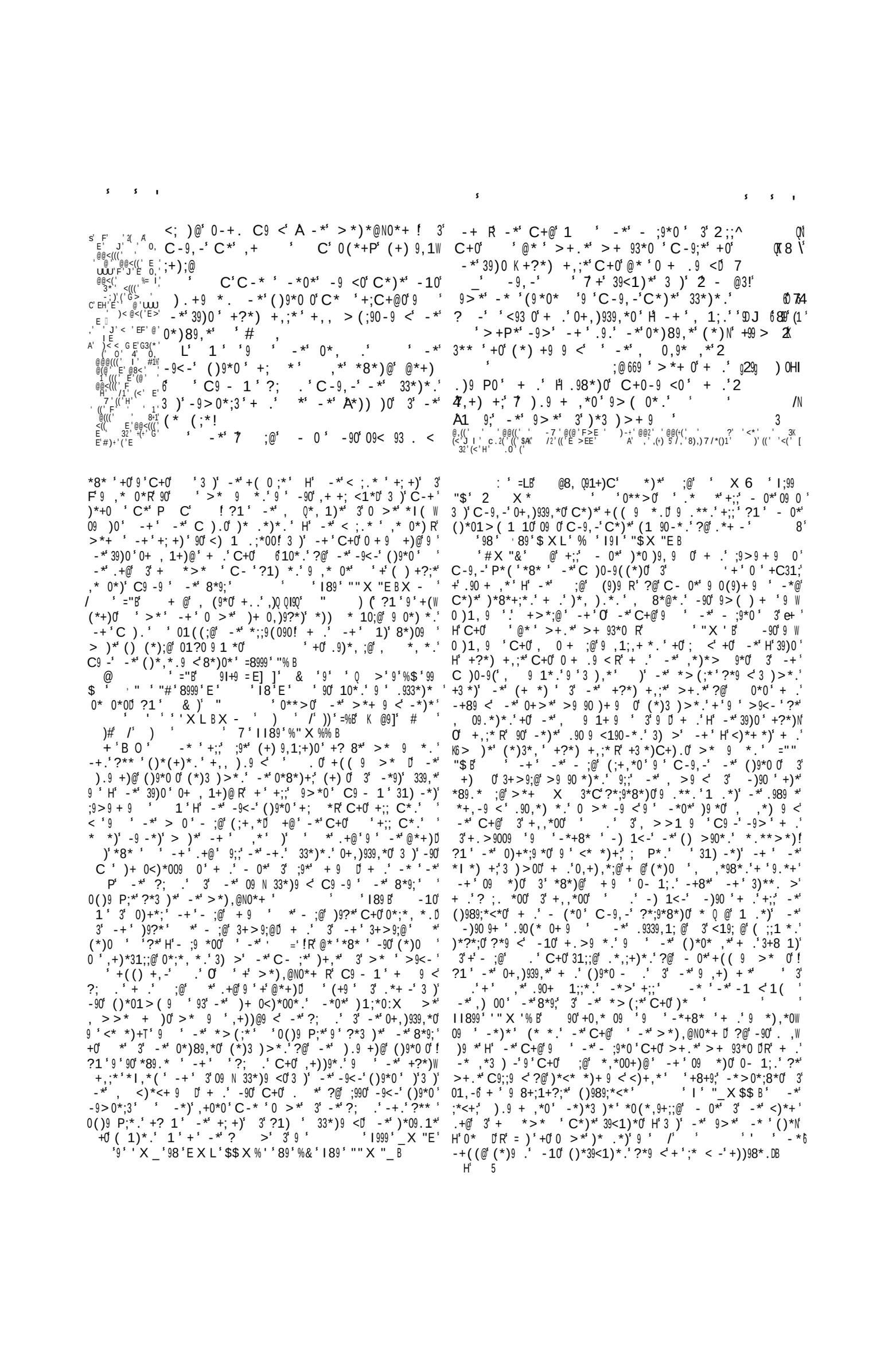


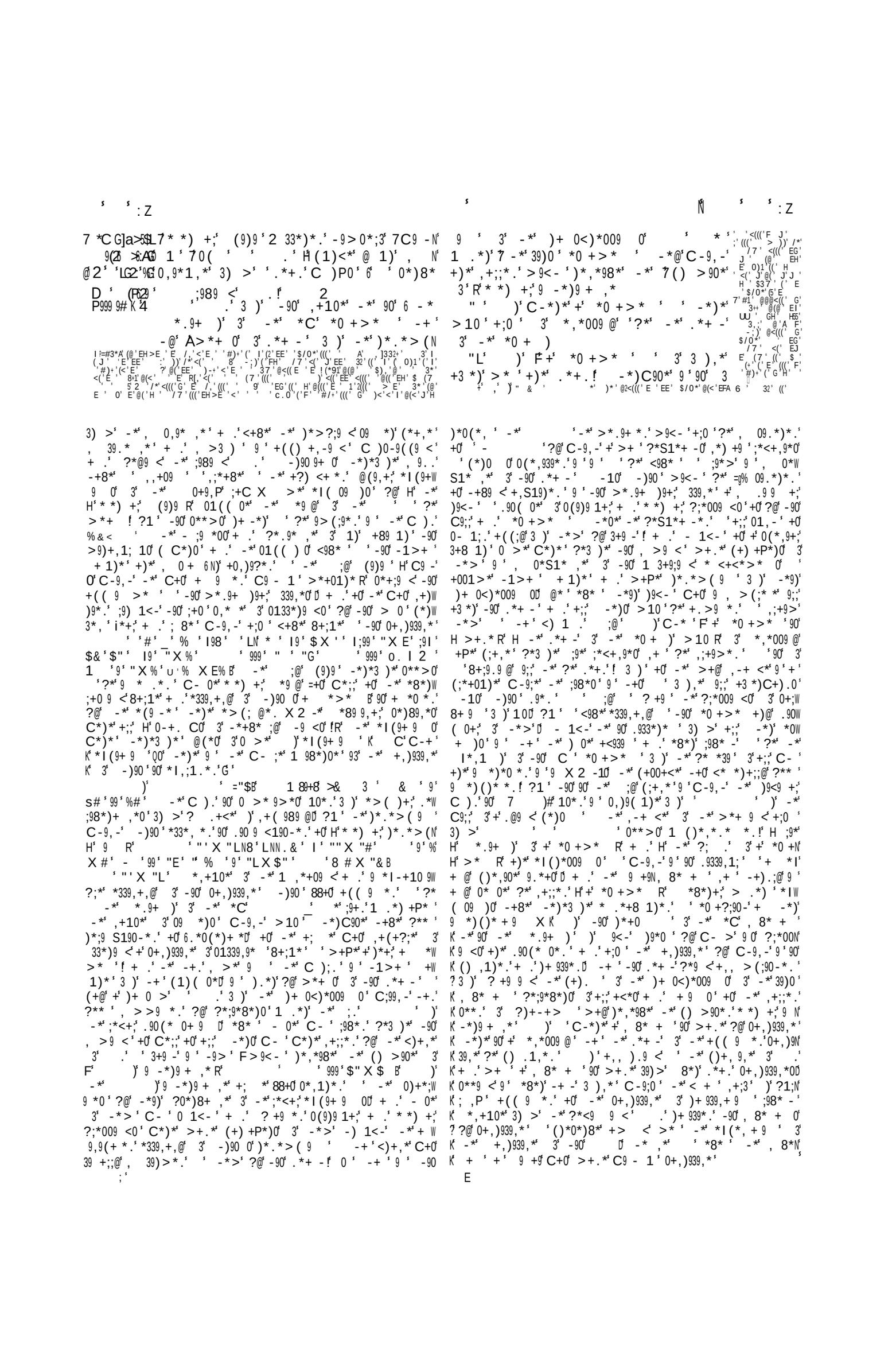


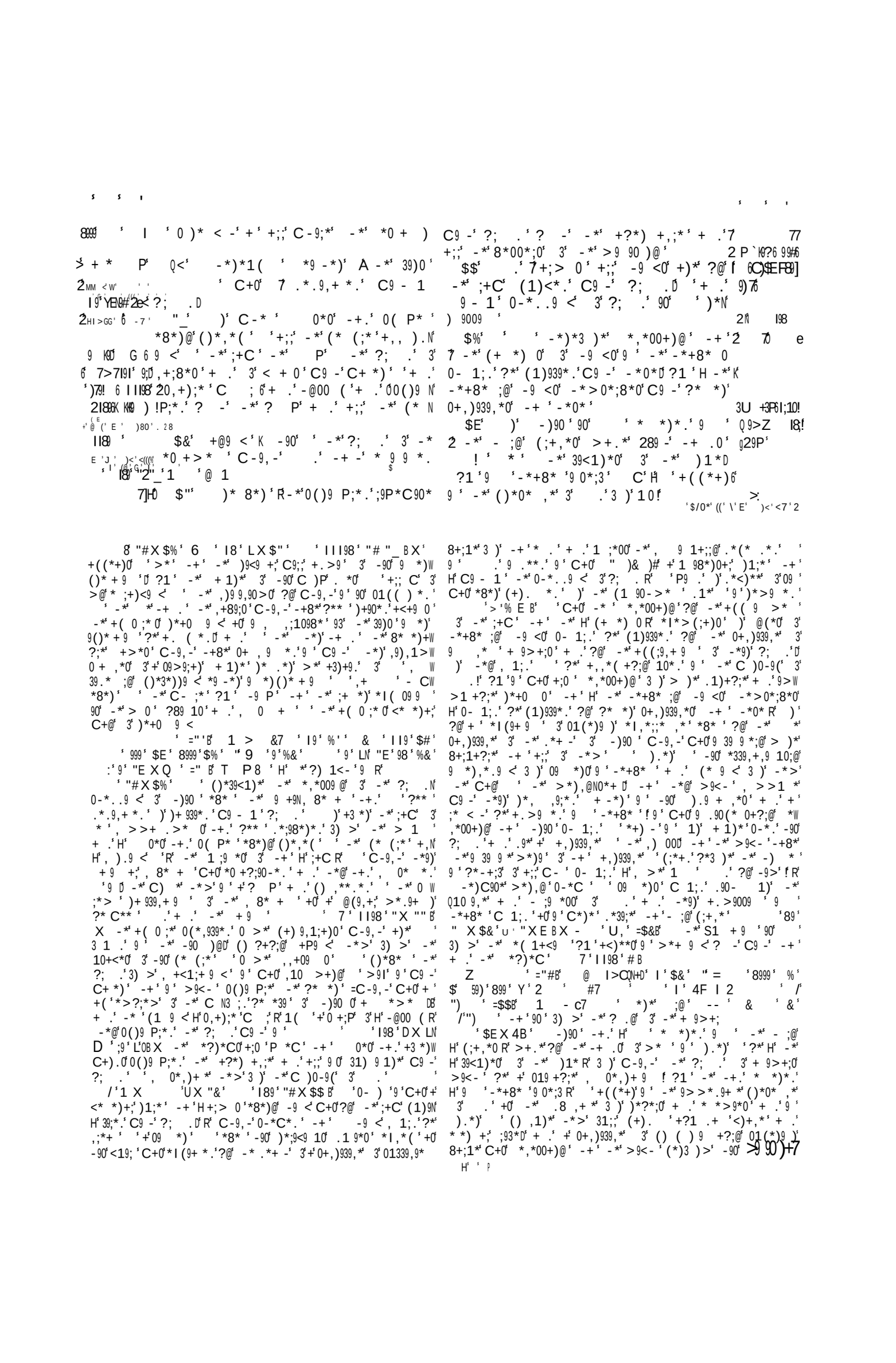


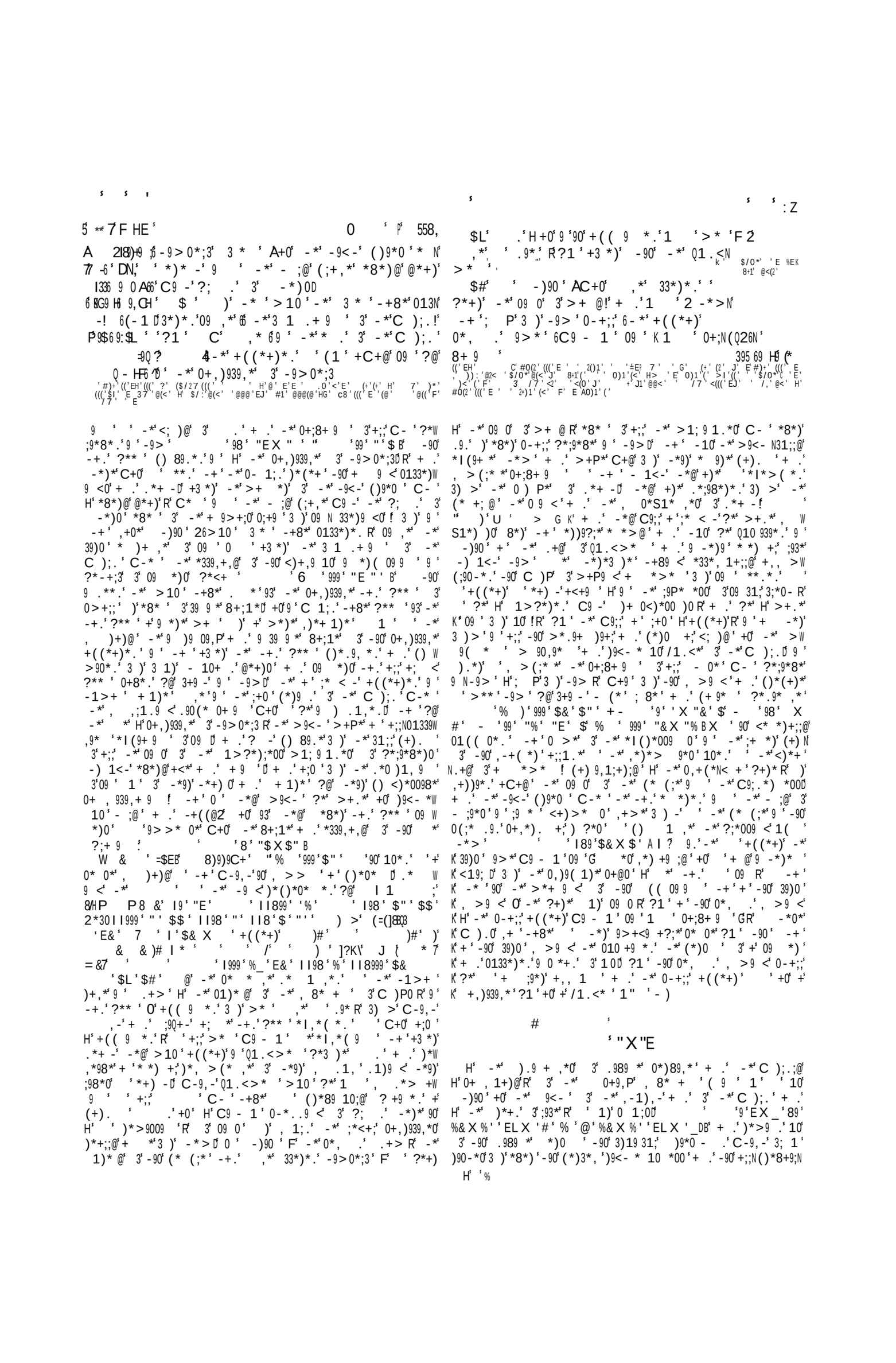


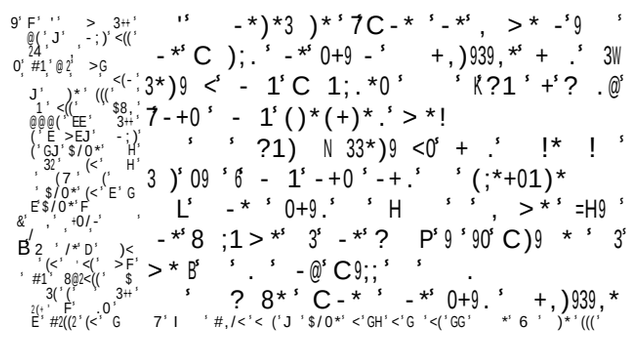


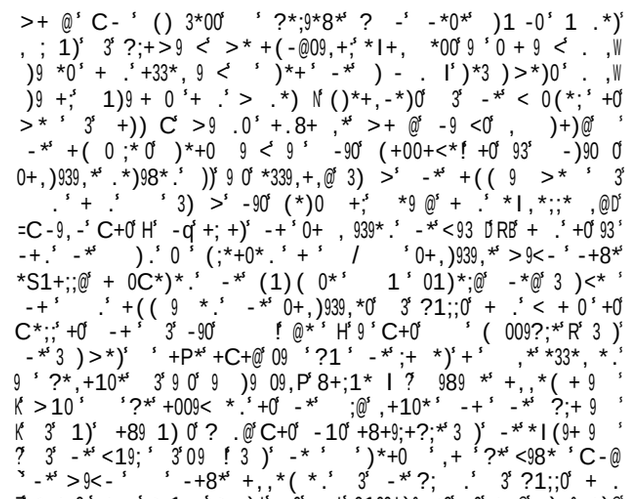


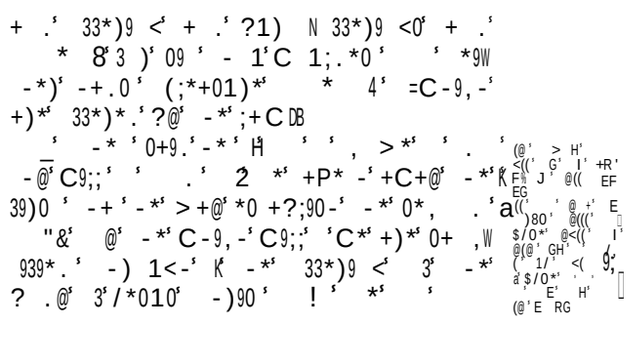


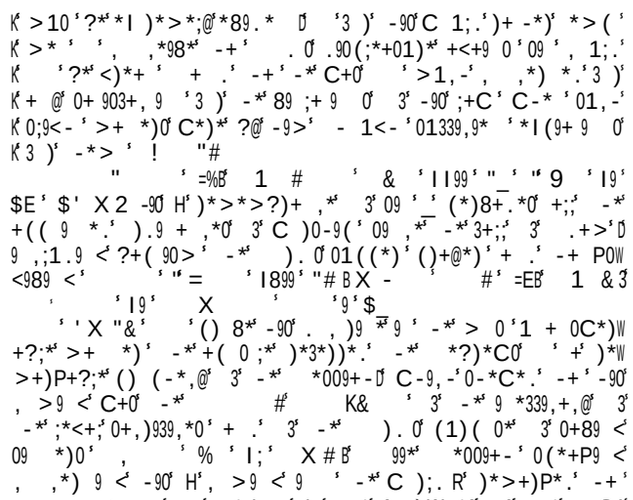


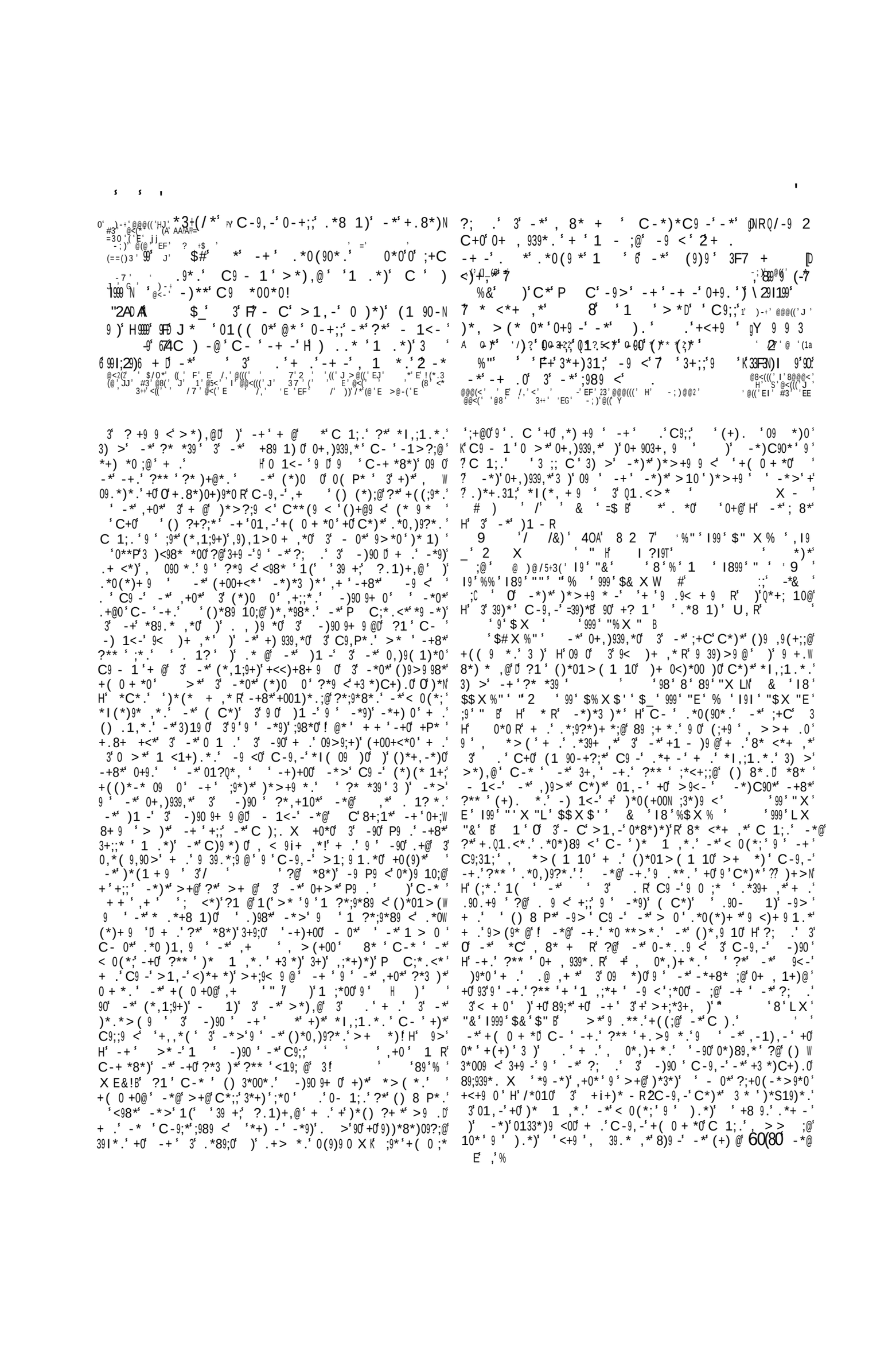


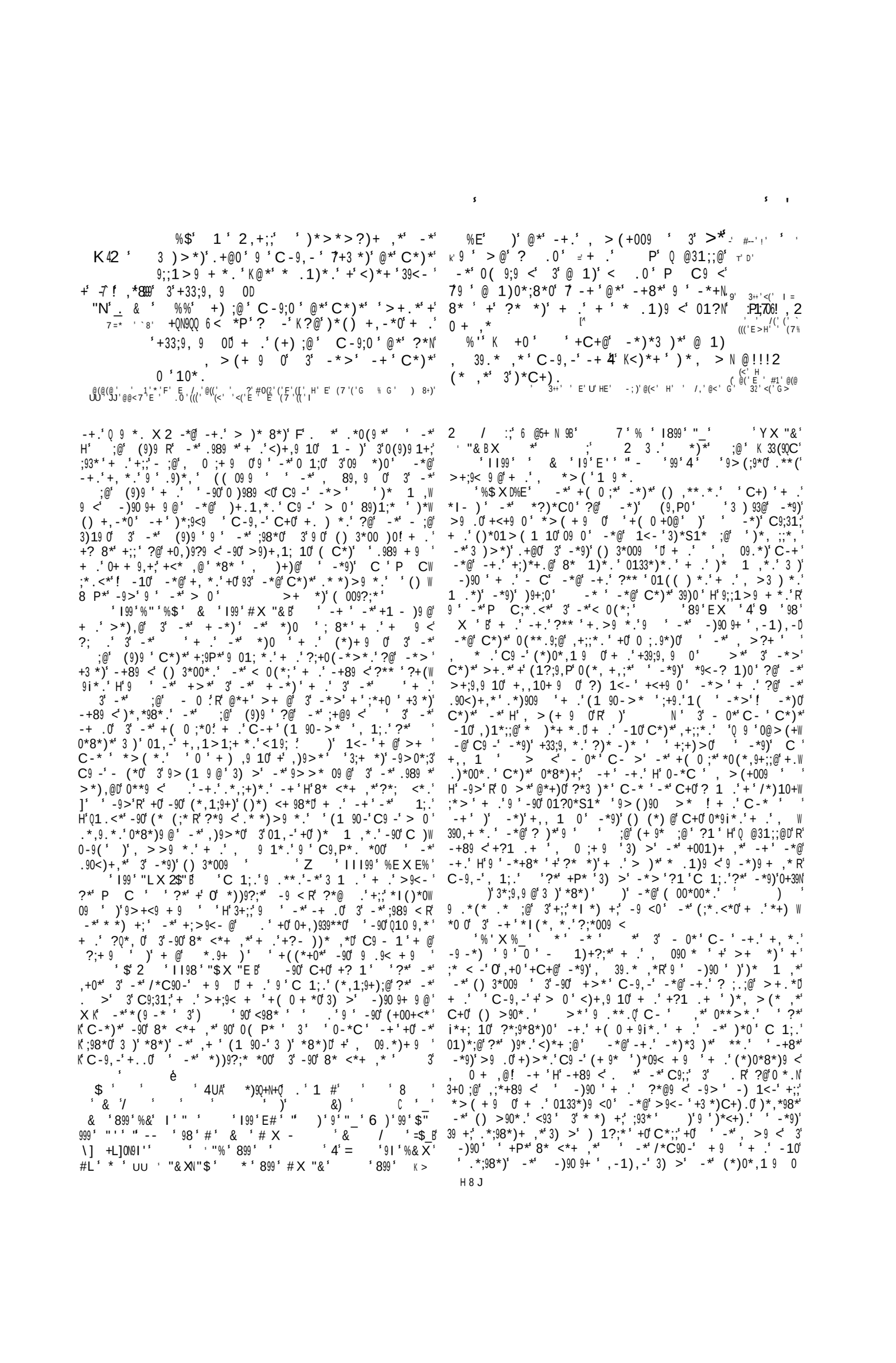


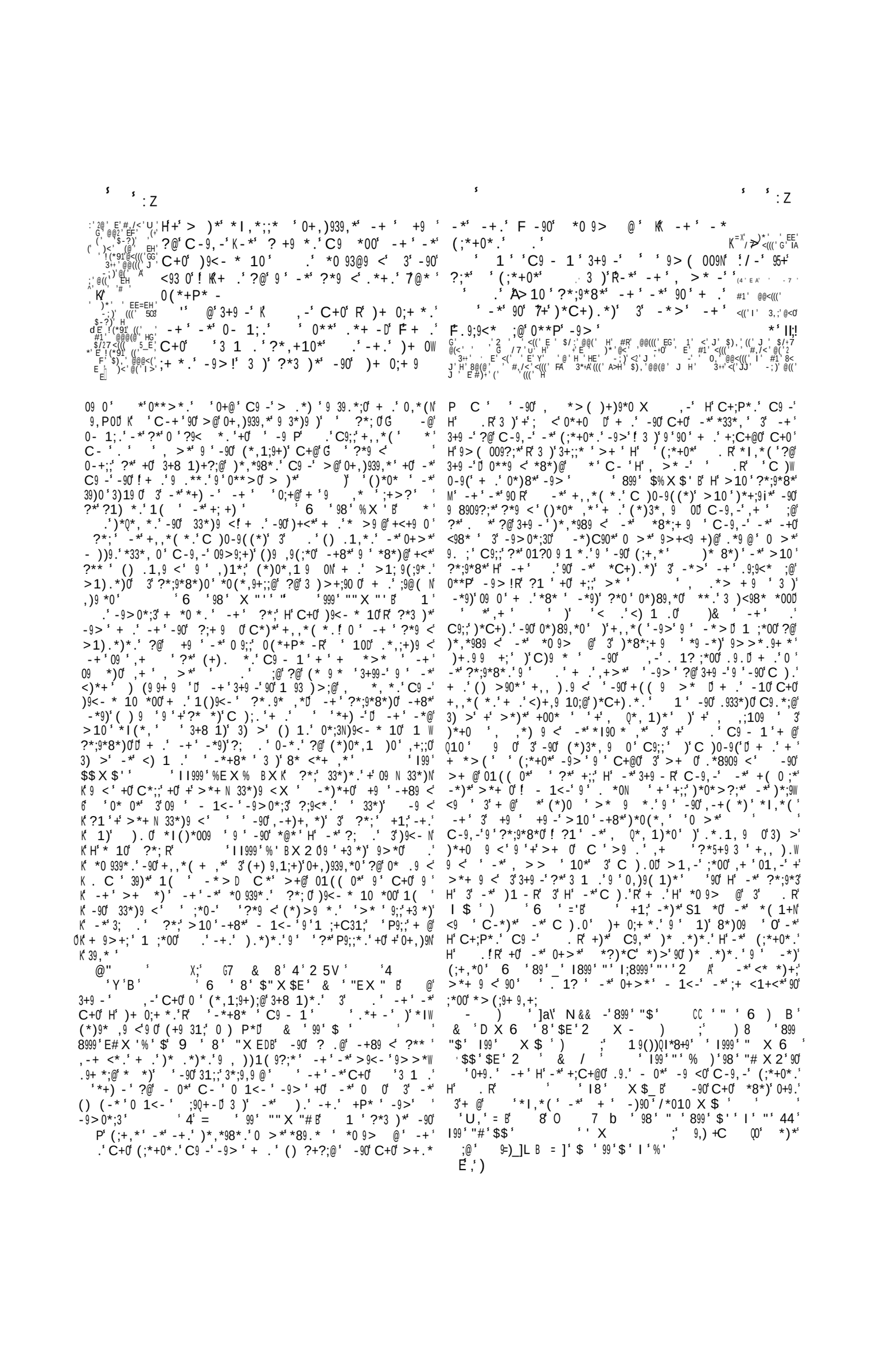


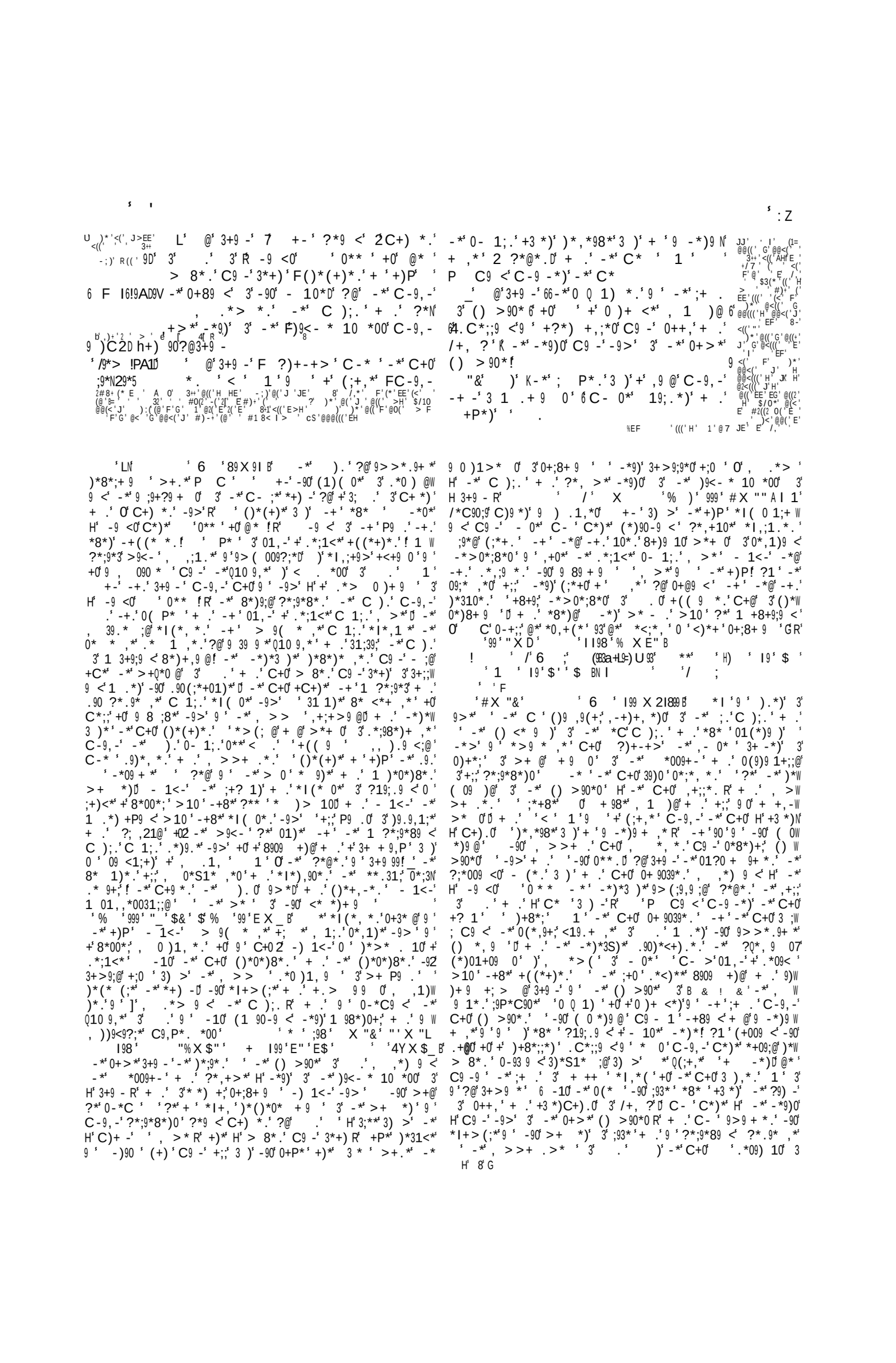


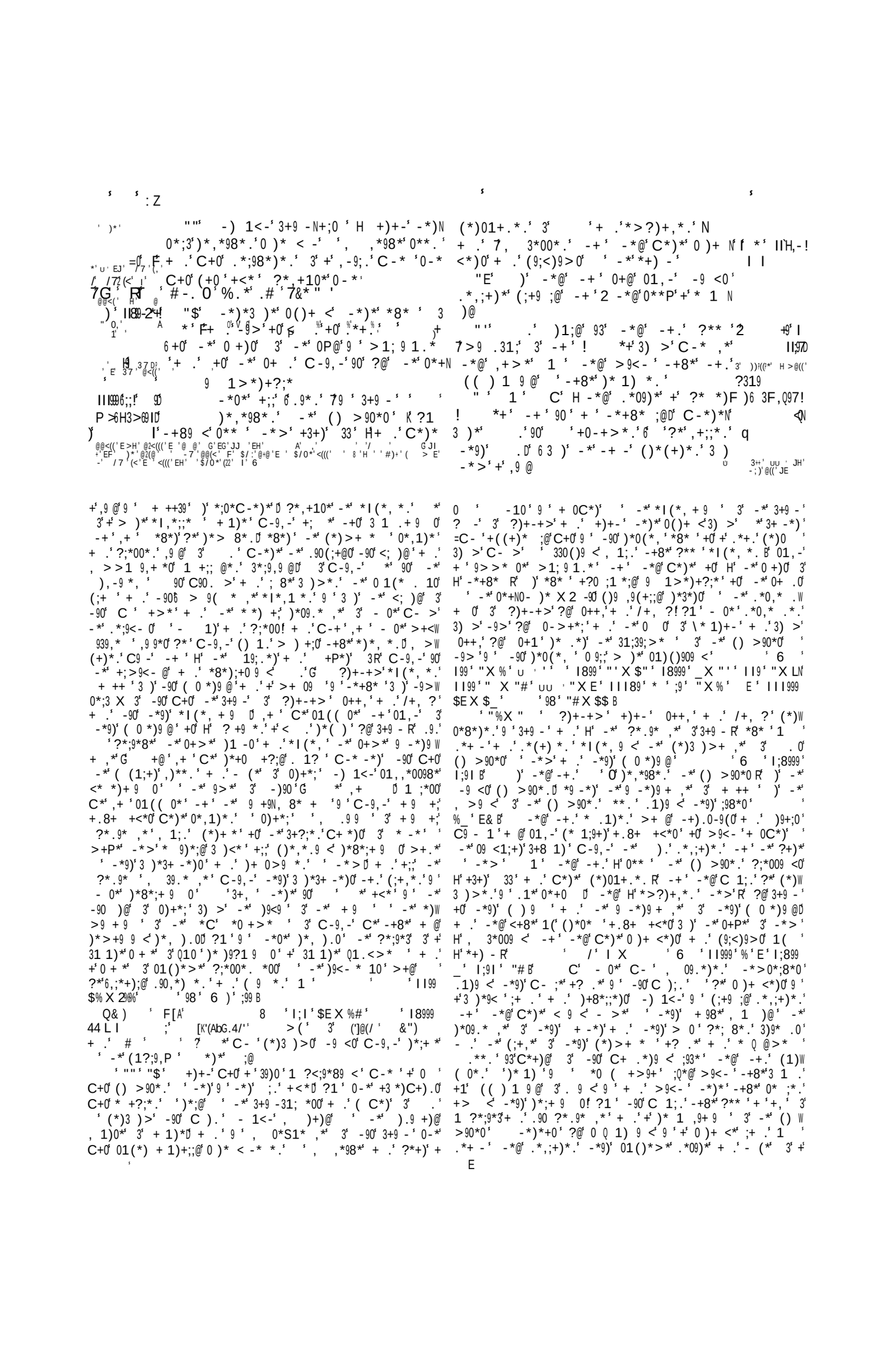


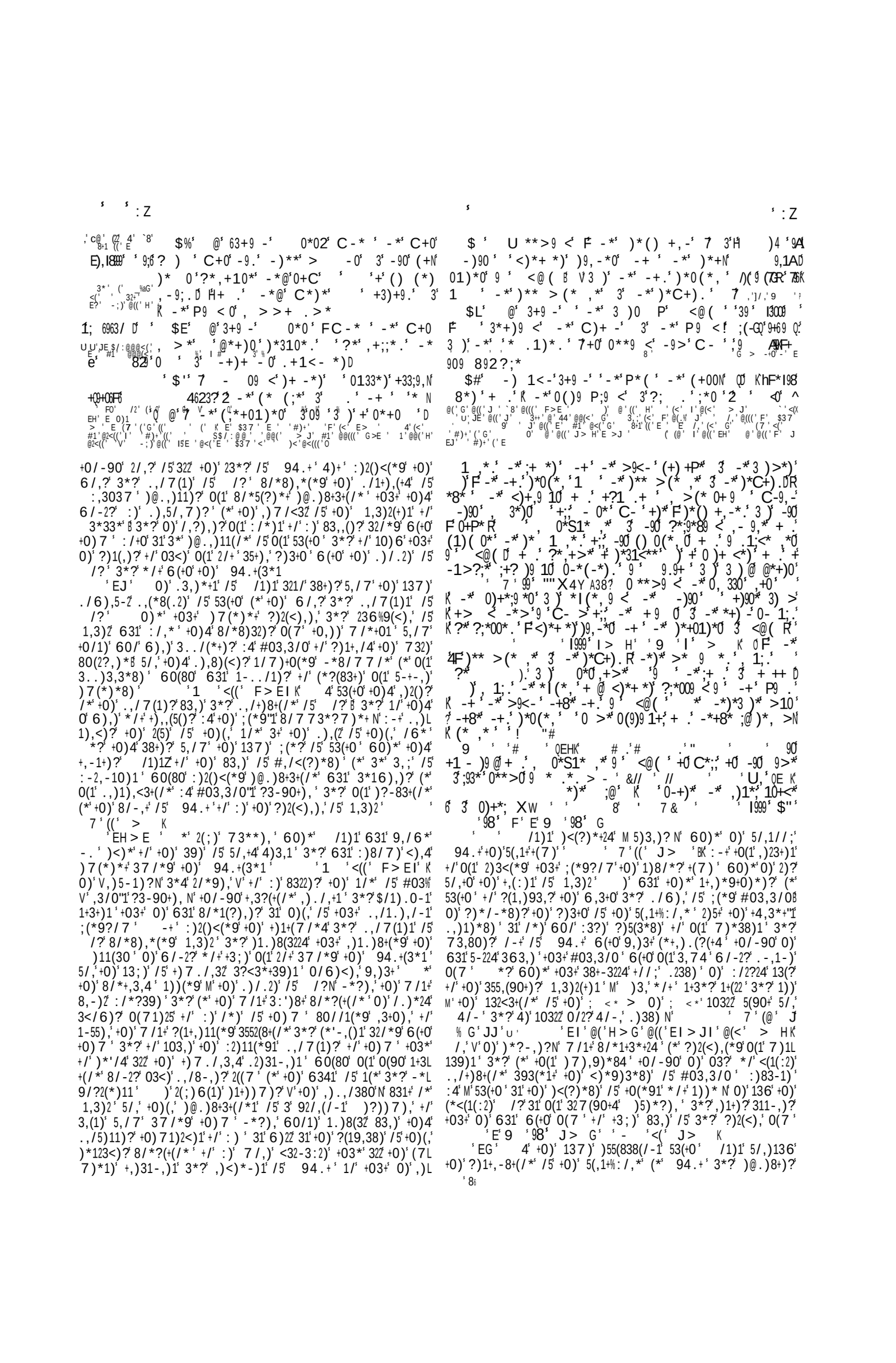


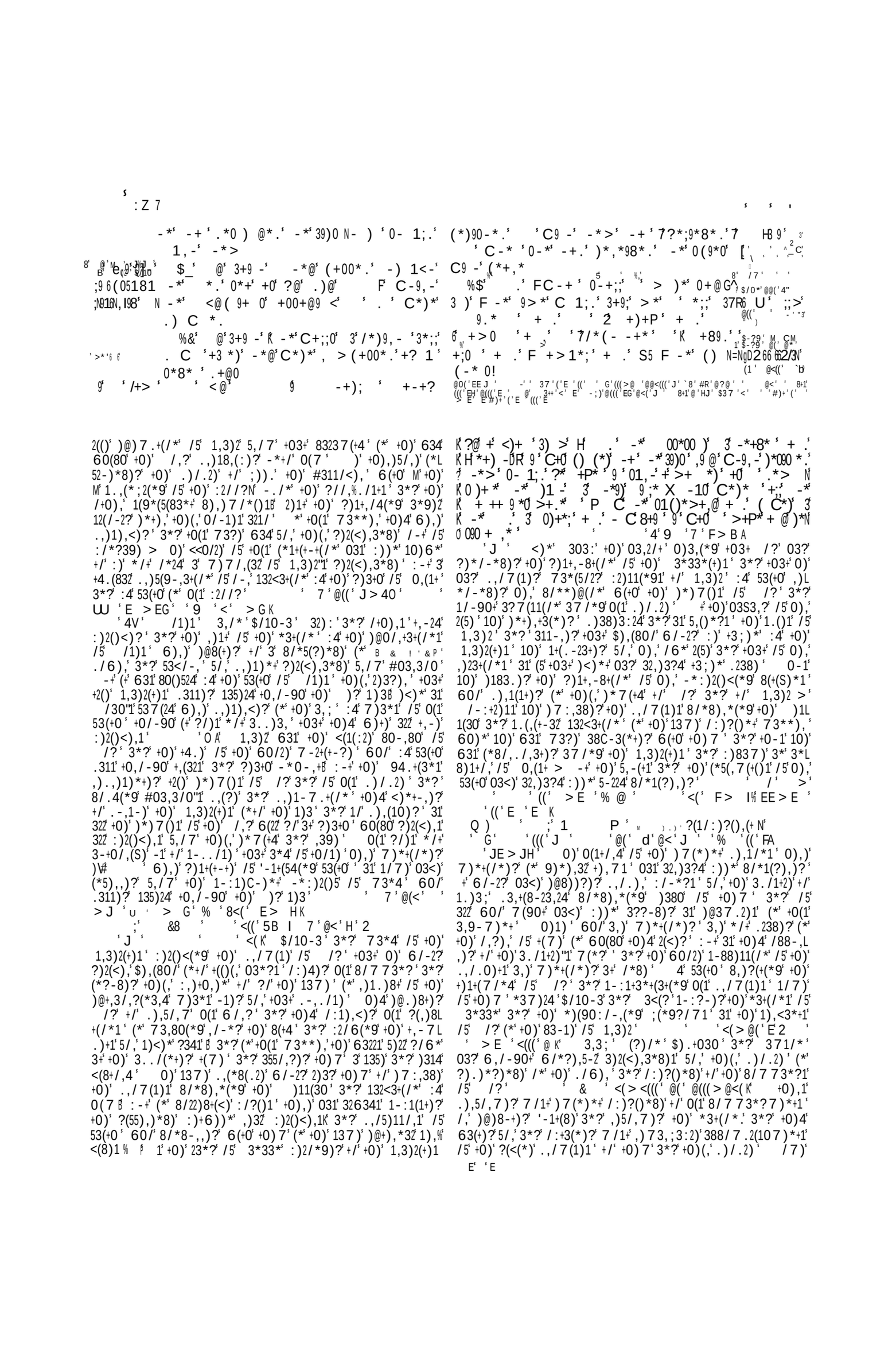


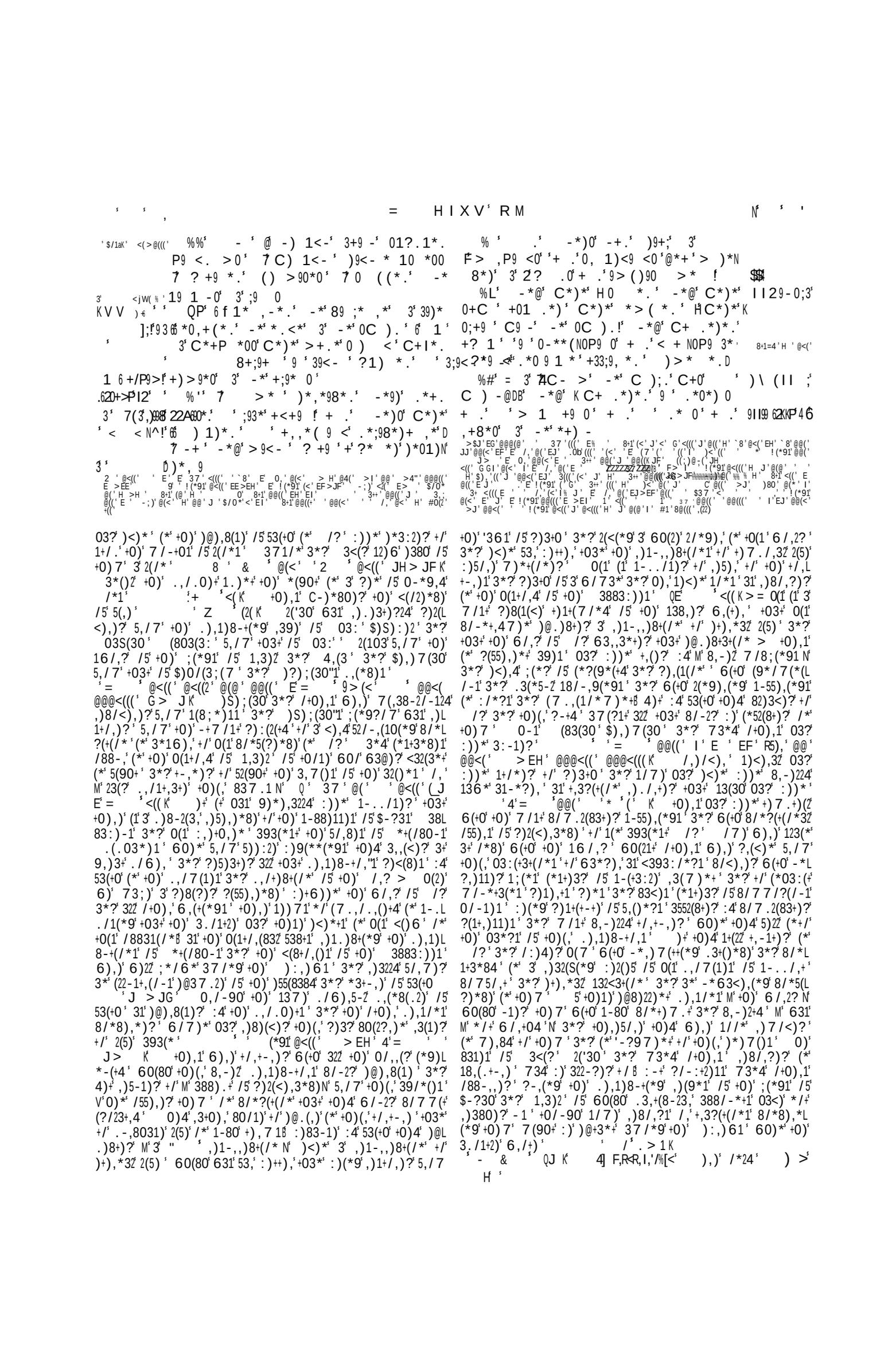




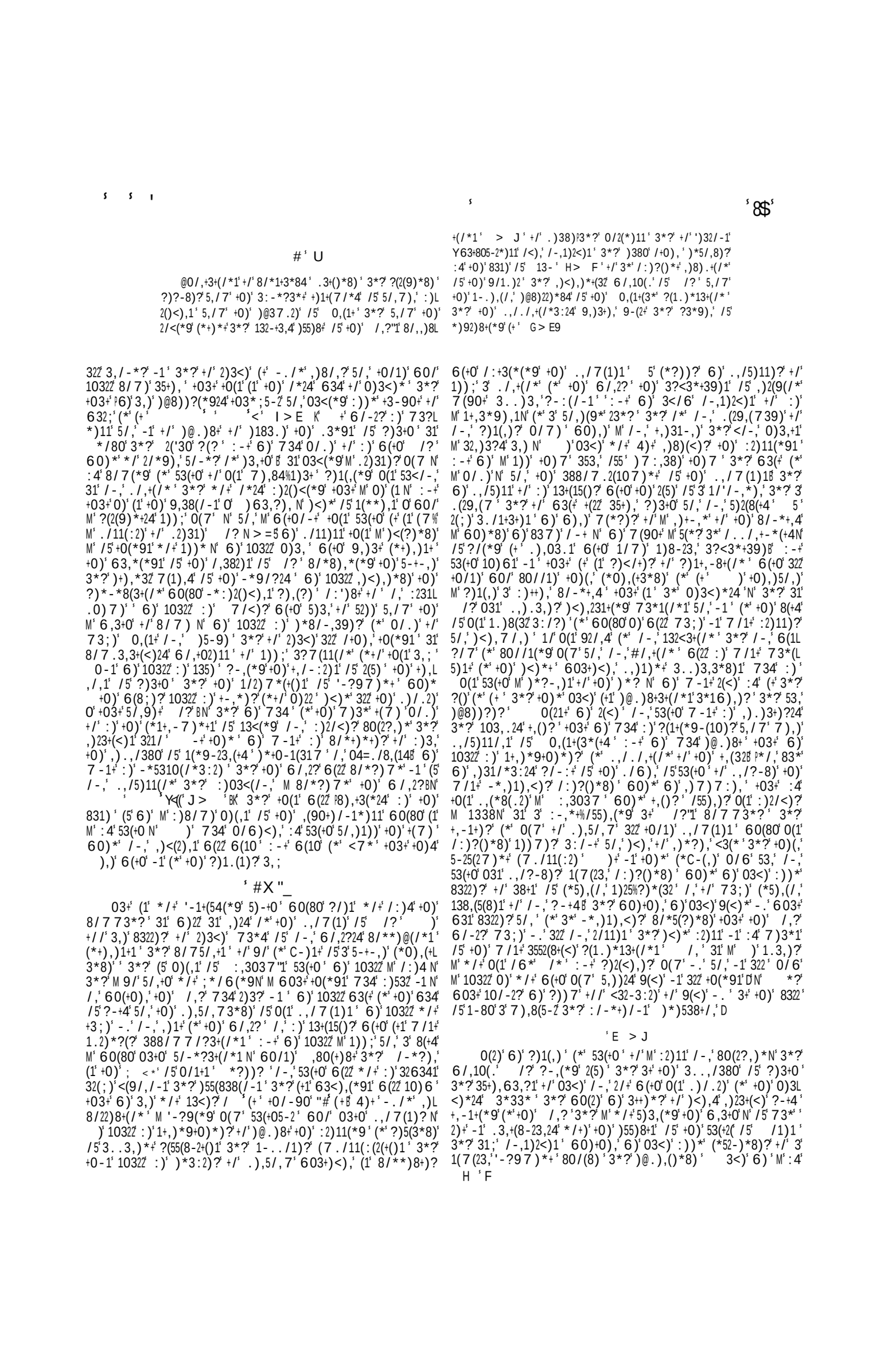


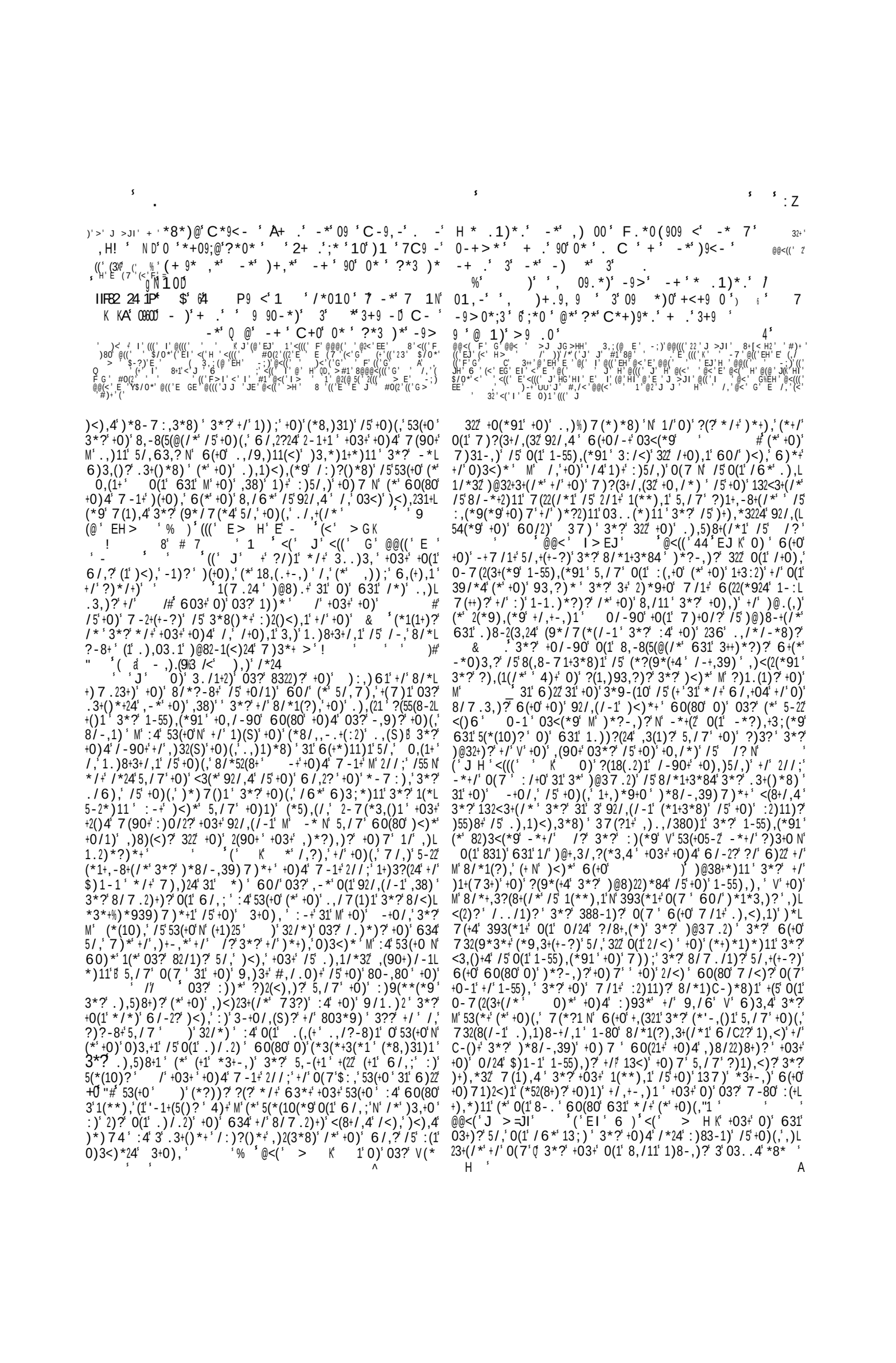


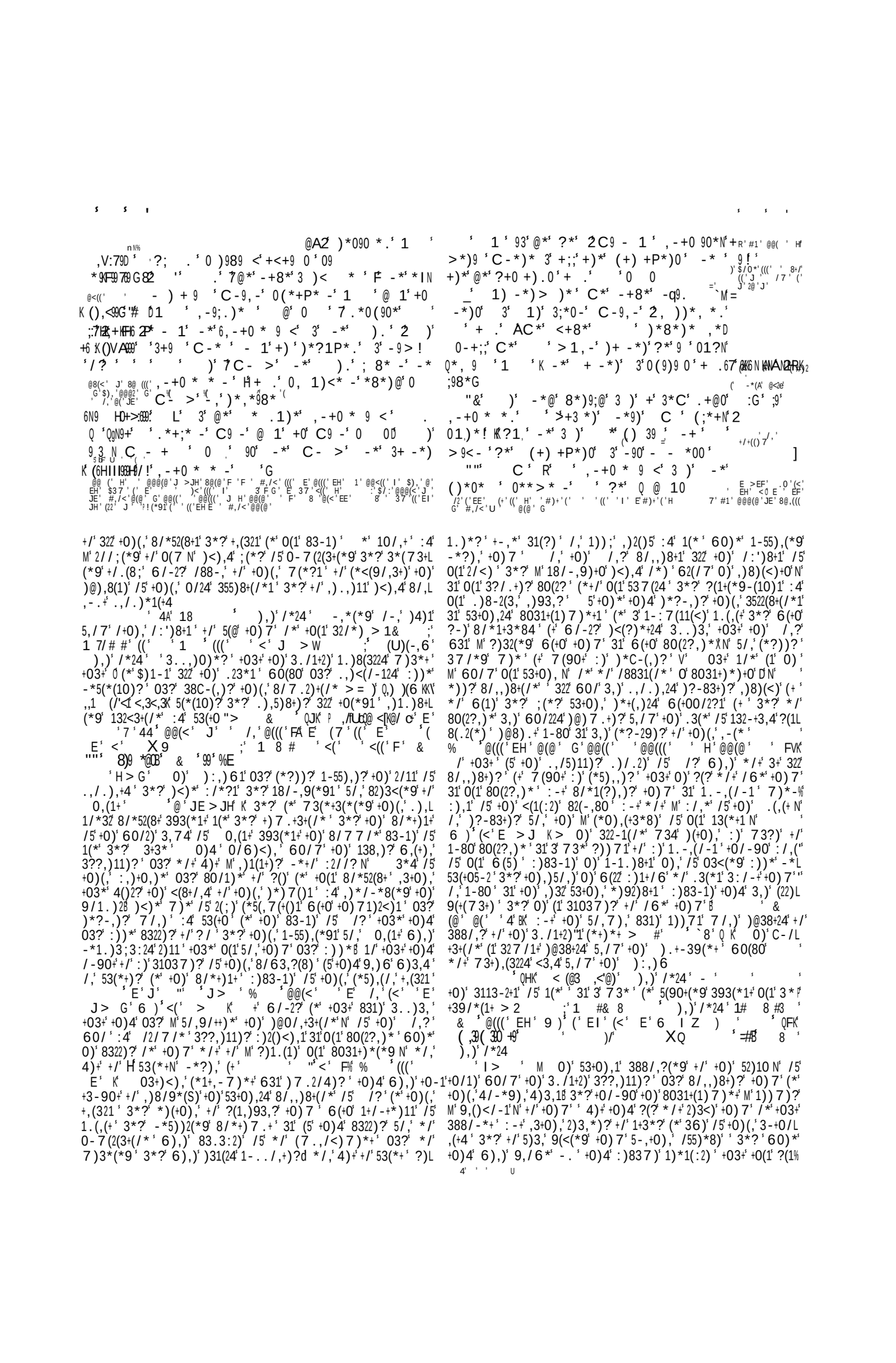


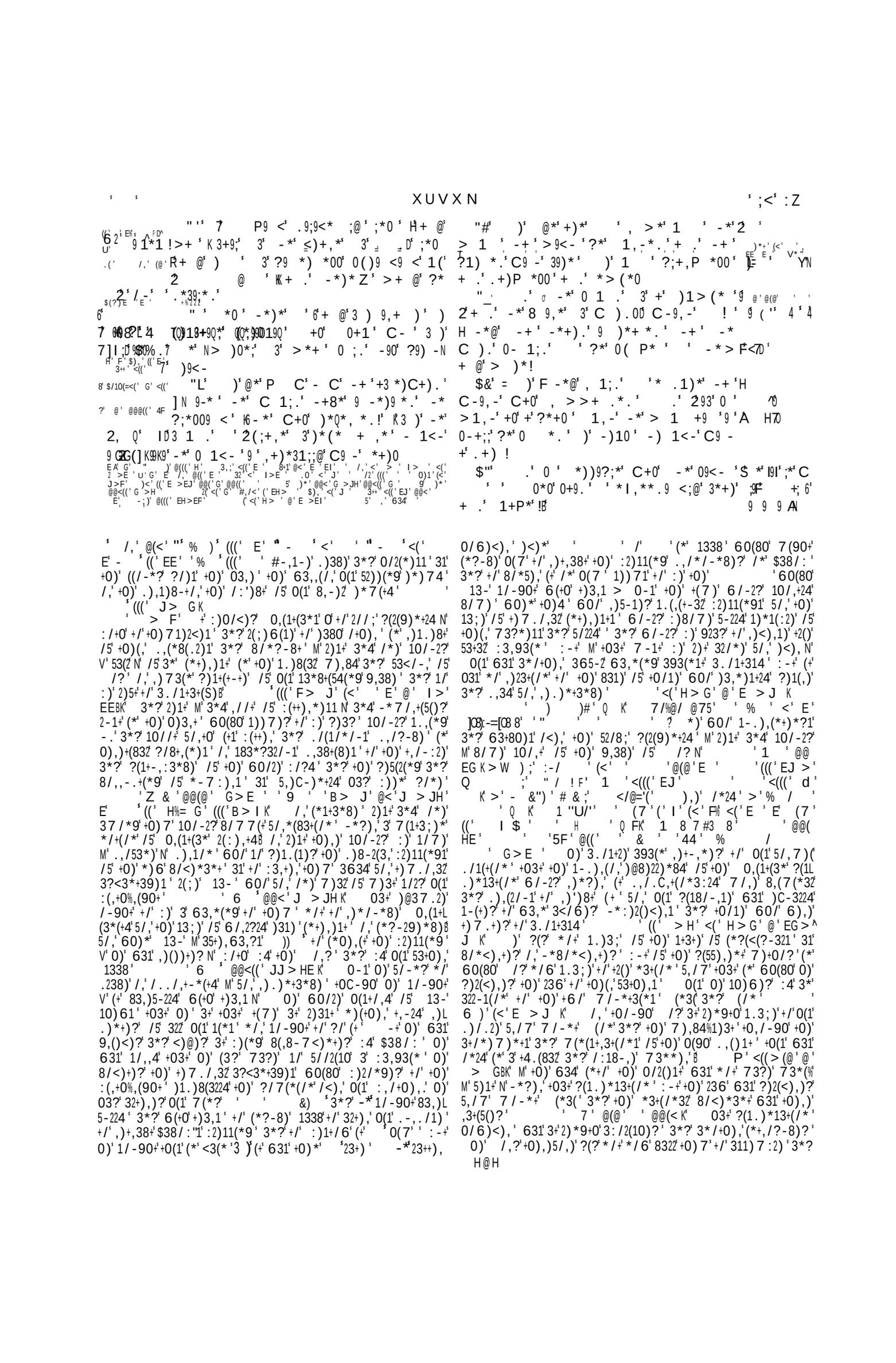


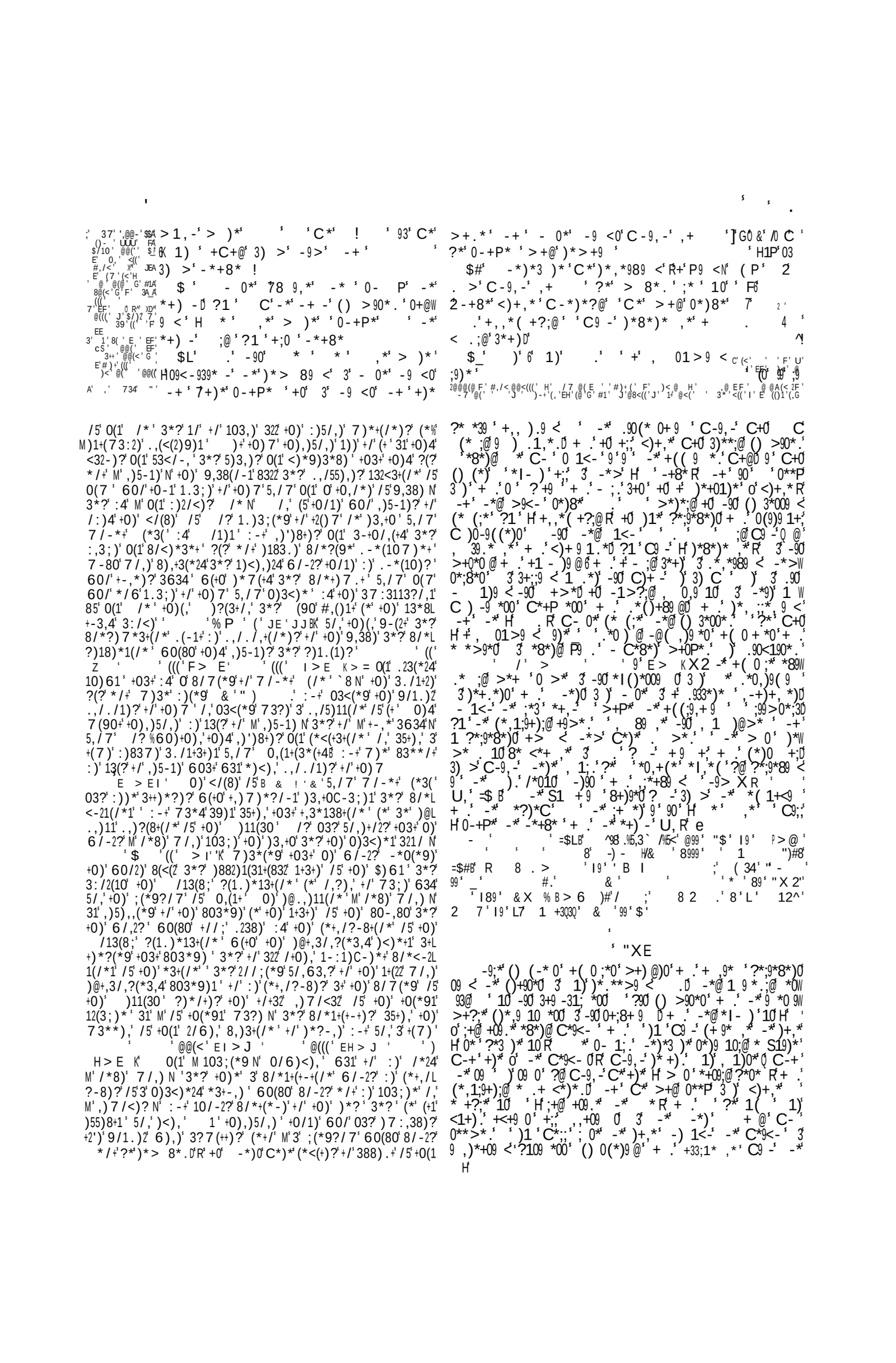
U

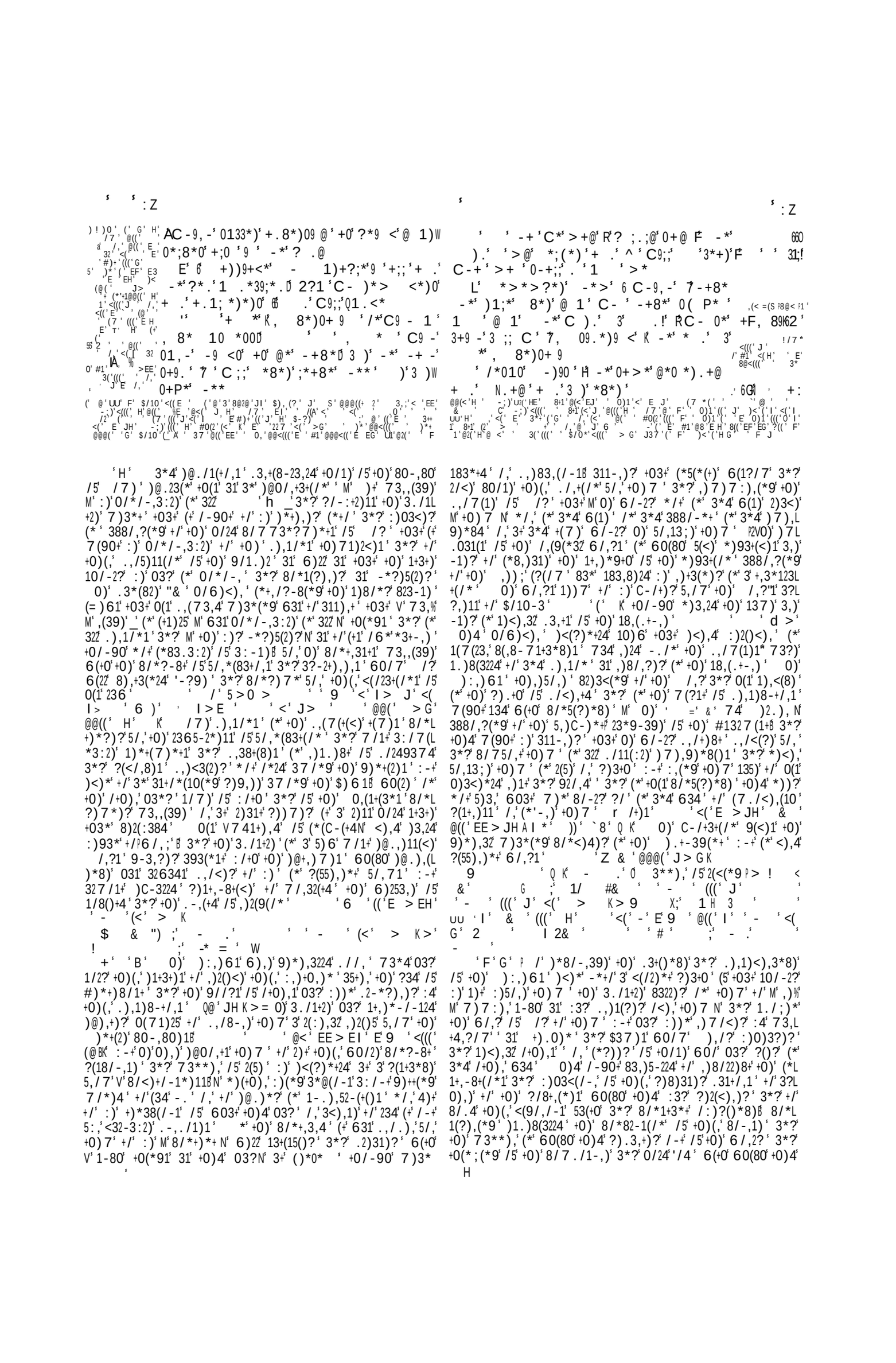


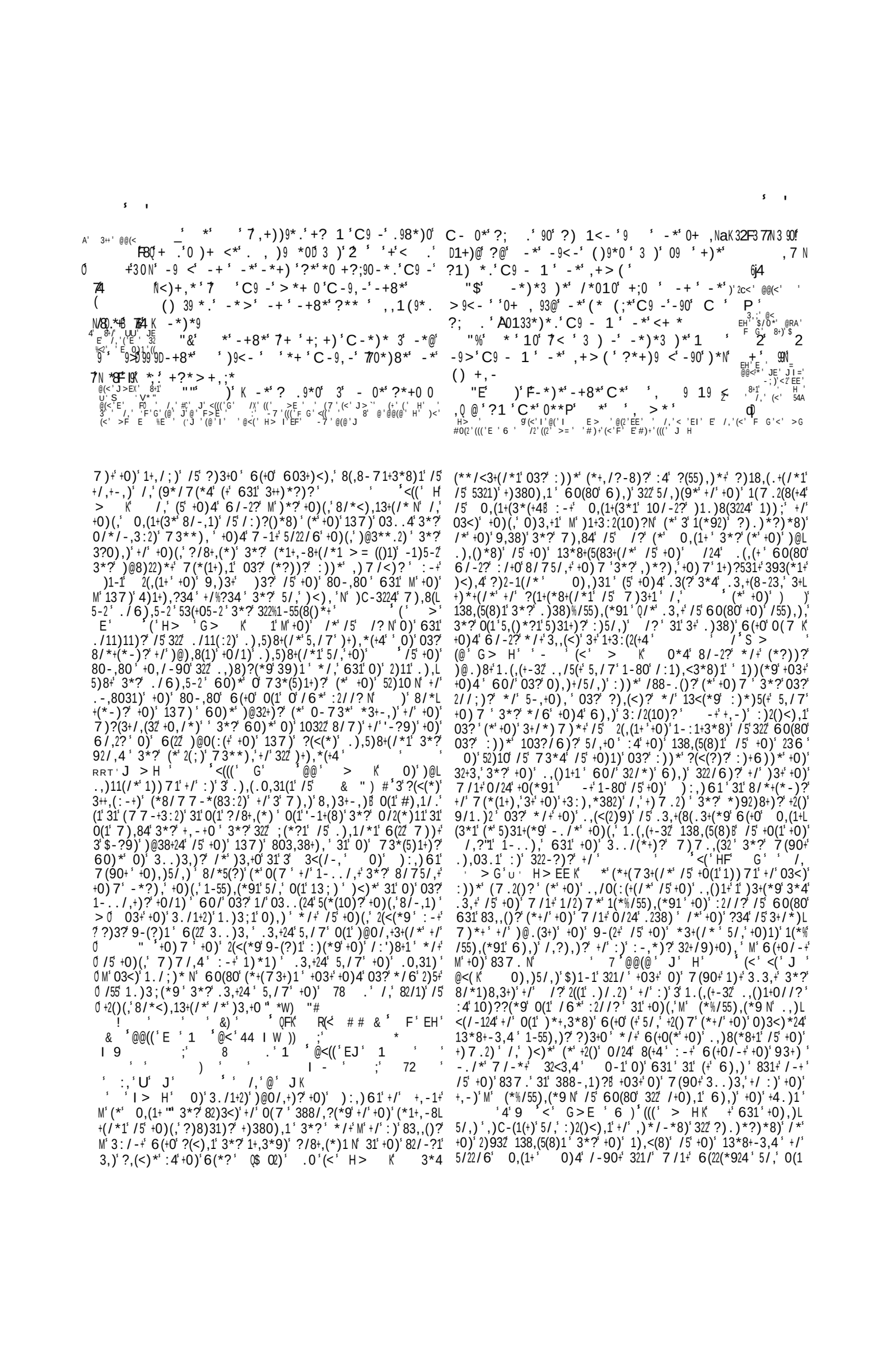


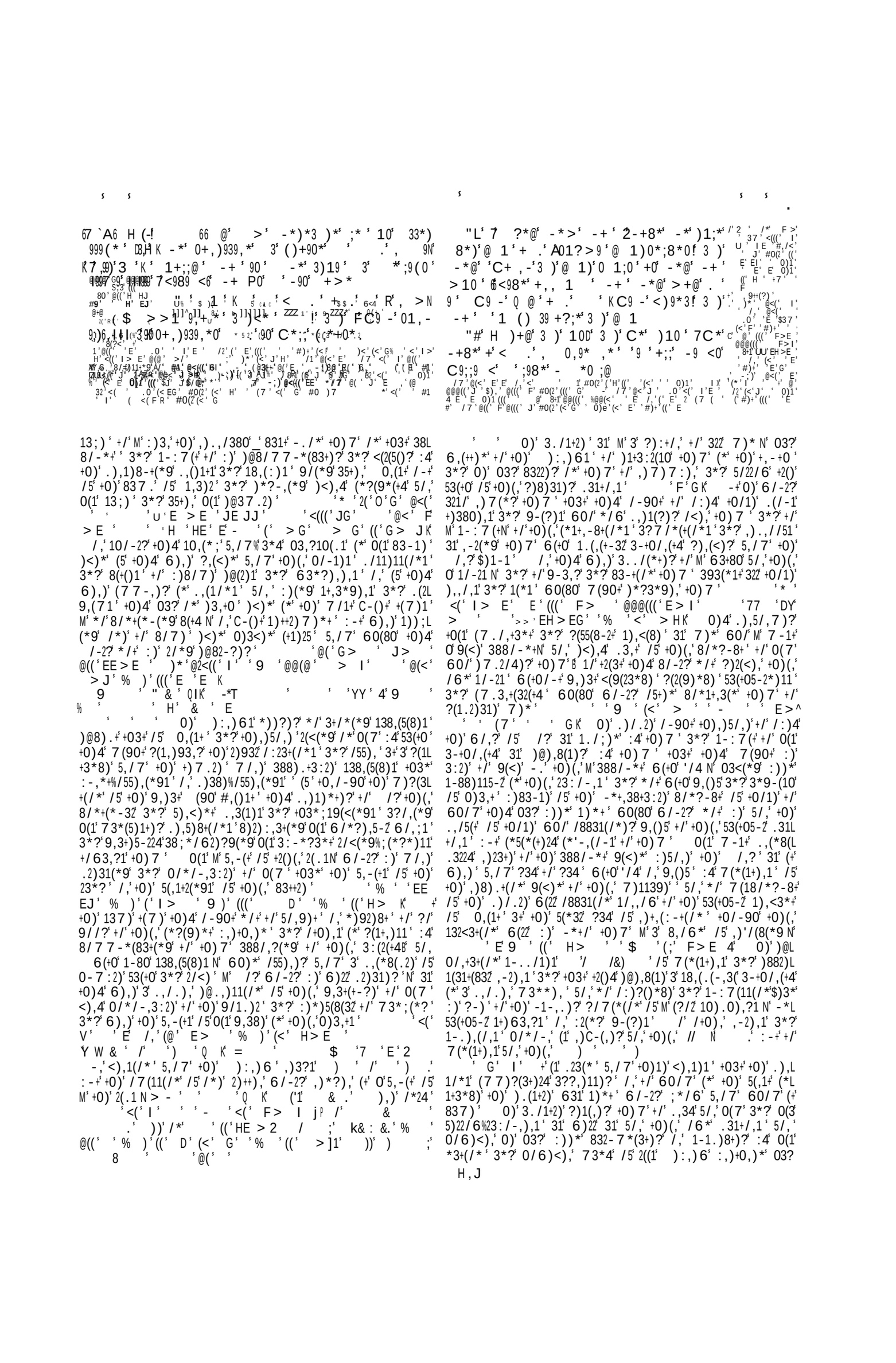




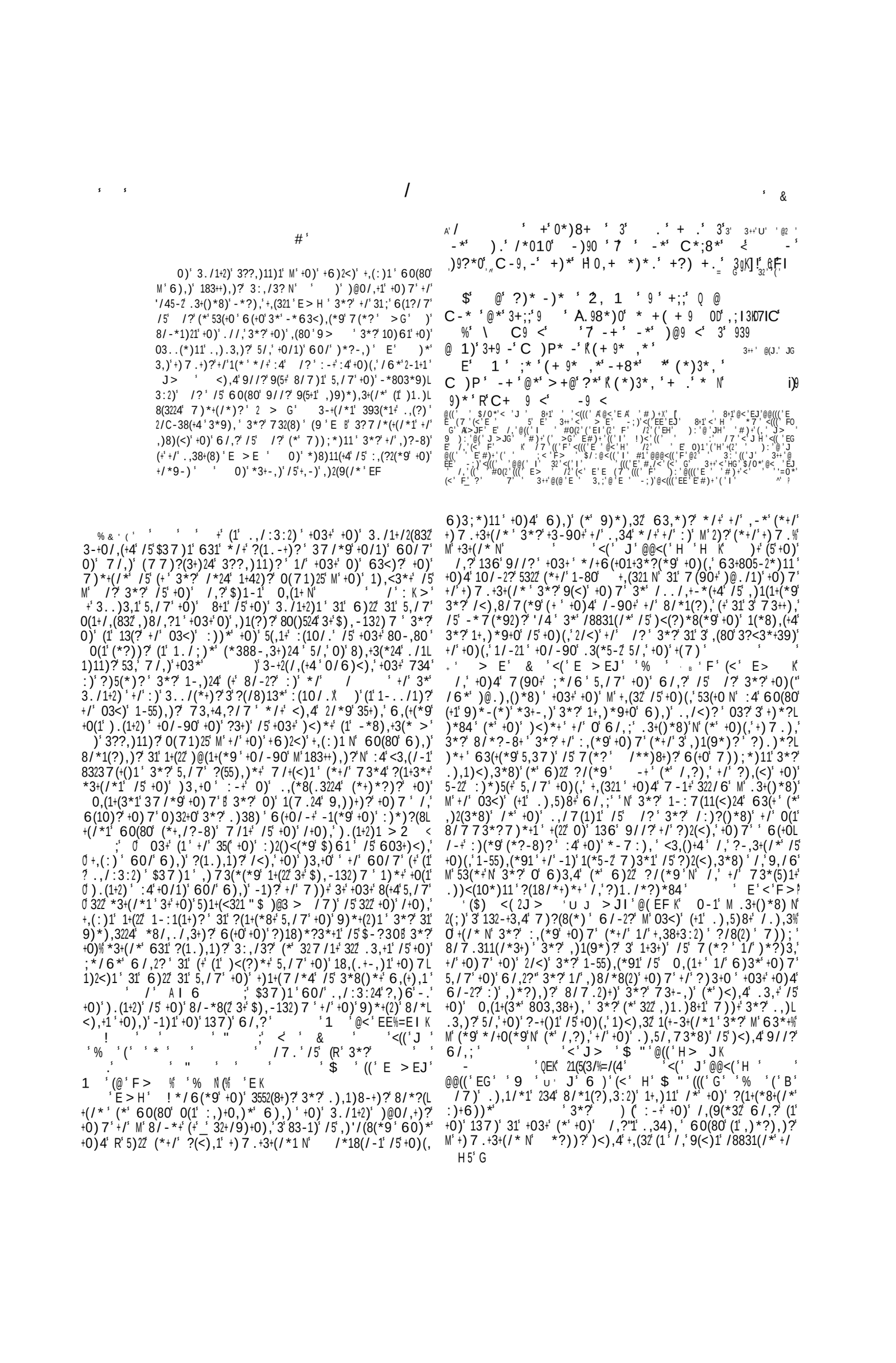


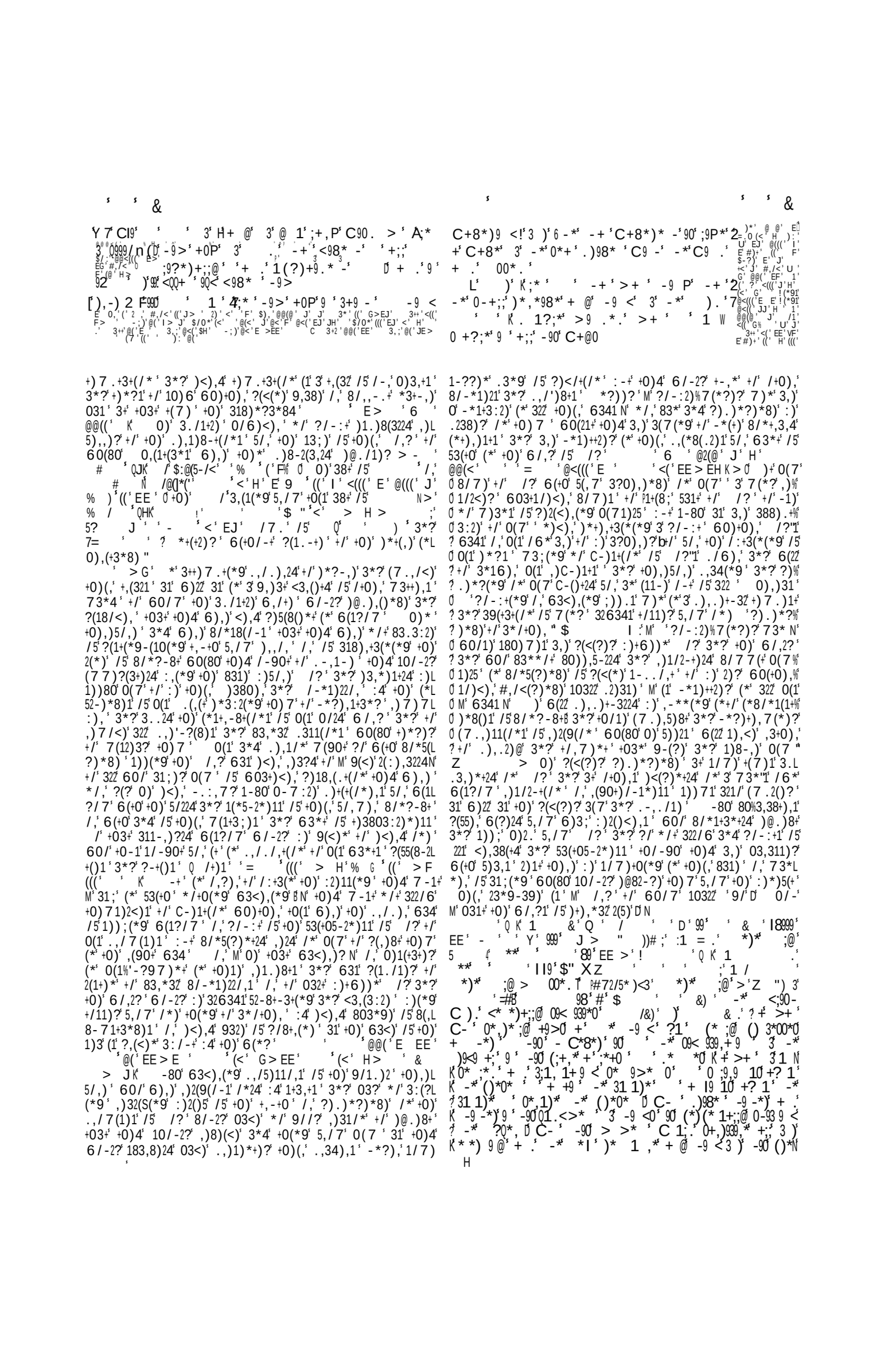


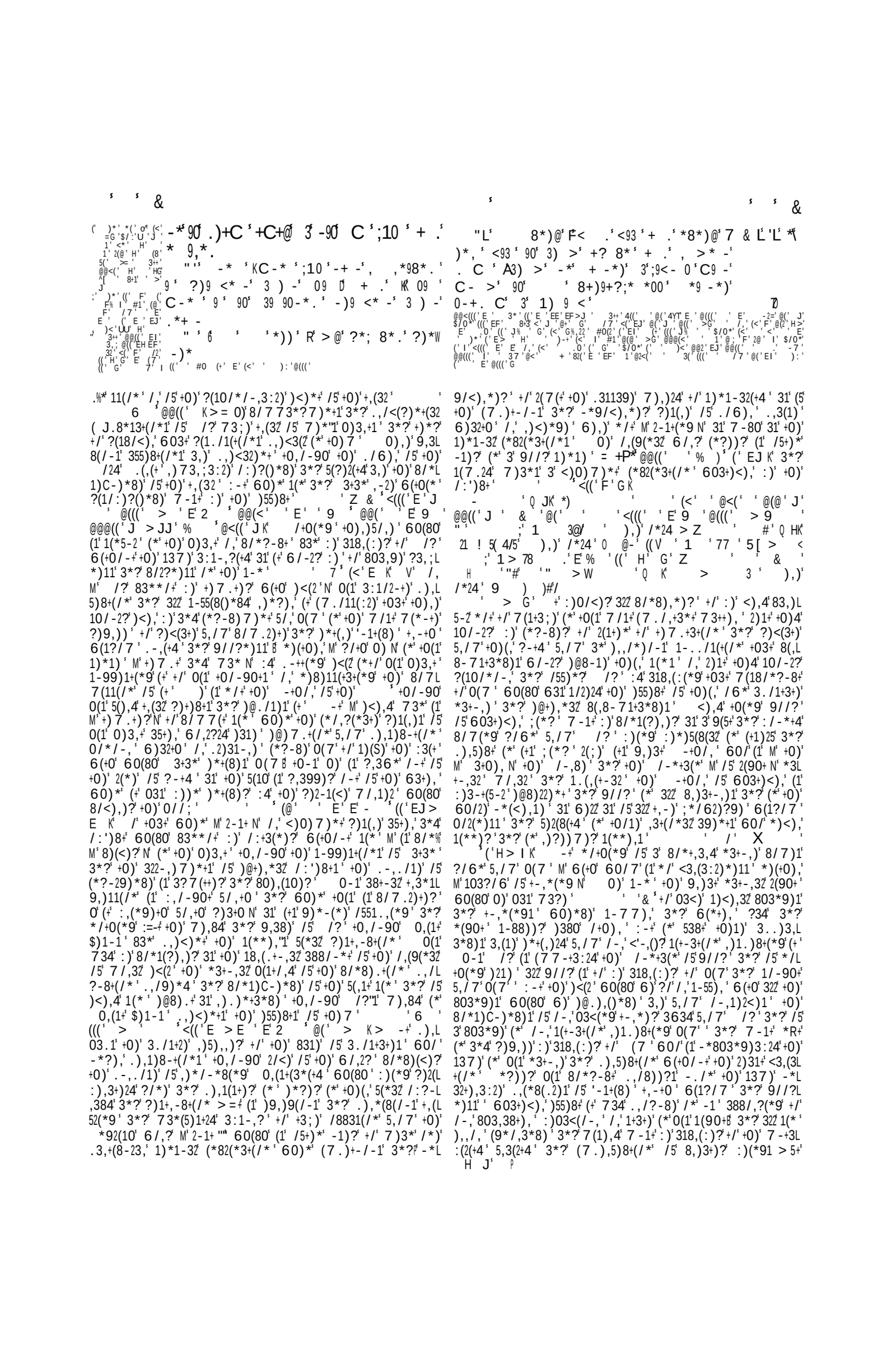


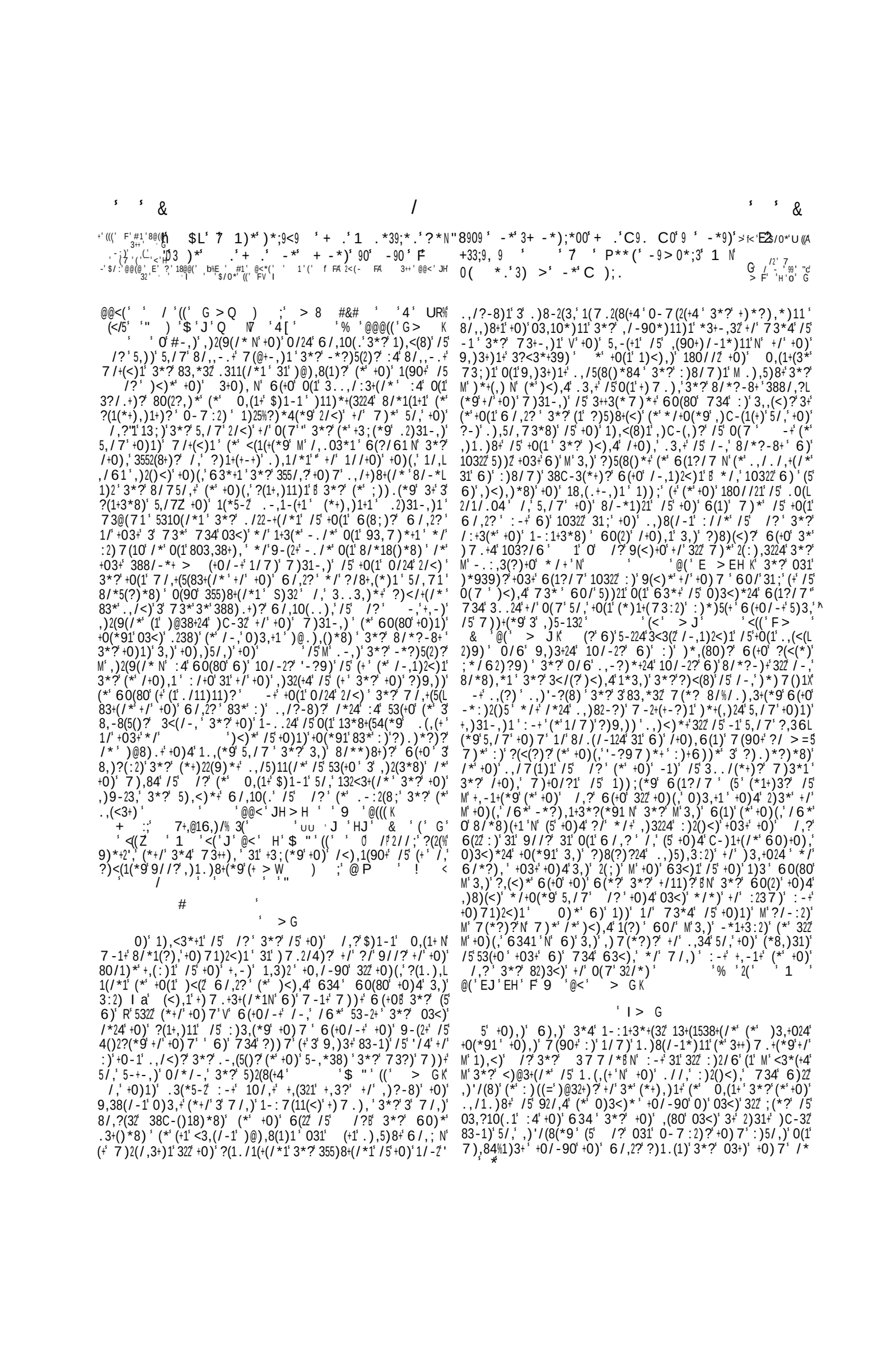


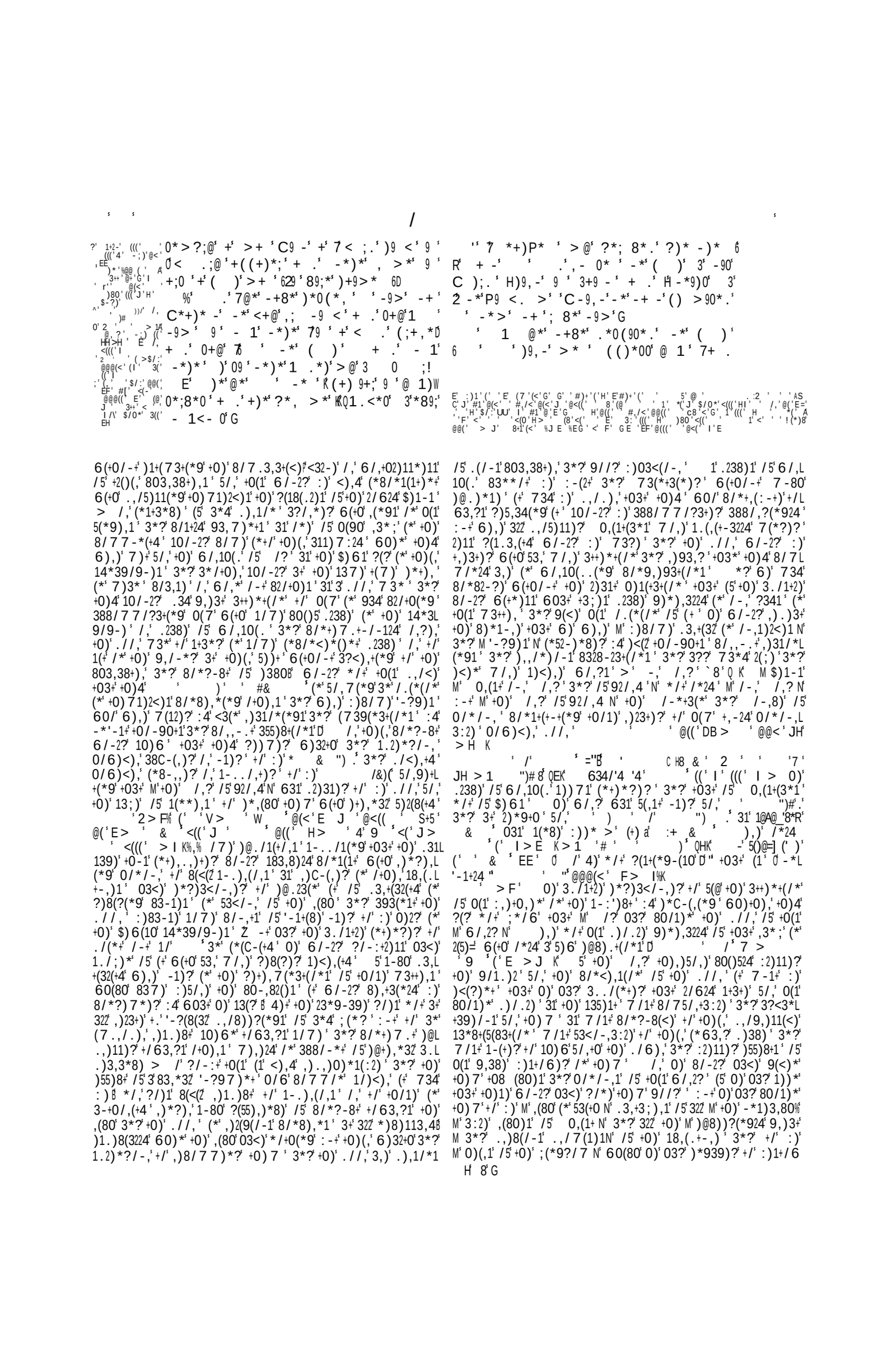
0)3,),1 6(22 2/1) +0)(, 1/-21 0,(1+(3*1 10/-2? 321/ .,34 5),<)*+24 3*? 8/*1+3*+24 5/, +0)(, 7(*(1+),1 3*? 5/, 322 60/ 1-1+3(- +03+ 138,)? 803,38+),B 5/, +0)1) 6/-2? 9)*)L ,3224 632; 7/,) 0/*/-,3:24 3*? 23:/-, 7/,) 1-88)115-224 (5 +0) ./.2) 6),) 7/,))3,*)1+ (* .,34(*9 5/, +0)7 <)* 60)* +0)4 1)) /, +0(*; +0)4 1)) 1/7)+0(*9 37(11 (* +0/1) 60/ -./* +0) 60/2) M 03<) 3 9//? 8/*18()*8) 6(22% V (*9 (* 322 +0(*91 +/ 2(<) 0/*)1+24 +0)4 10/-2? .,34 +0) 7/,) 5,)C-)*+24 3*?)3,*)1+24 5/, +0)7)+ -1 +0)* 3.L ./380 M +0) /? /5 .)38) 60/ :,/-90+ 393(* 5,/7 +0) M ?)3? +0) 9,)3+ 0).0),? /5 +0) 10)). N 3*? M +0,/-90 0 +0) :2//? /5 +0))<),231+(*9 8/<)*3*+N 2)+ -1 :)1))80 0(7 5/, /-,1)2<)1 3*?)380 /+0), 0 73;) -1 .),5)8+ (0 M)<),4 9//? 6/,; +/ ?/ 0(1 6(22 6/,;(*9 (* -1 +03+ M 60(80 (1 6)22%.2)31(*9 (* 0(1 1(90+ +0,/-90 $)1-1 0,(1+ +03+ 6) 734 92/,(54 0(7 5/,)<), 0)*)<),4 6/,? /5)@0/,+3+(/* 3*?)<),4 ?(1.)*13+(/* /5 #,/<(?)*8) Z6-2 ?/ -1 9//? +0) 8/77-*(/* /5 13(*+1 6(22 :) 73(*+3(*)? 3*? M 9,38) 6(22 :) 6(+0 -1 322 N +(22 (+ :) 8/7.2)+)? (* 92/,4 7)*

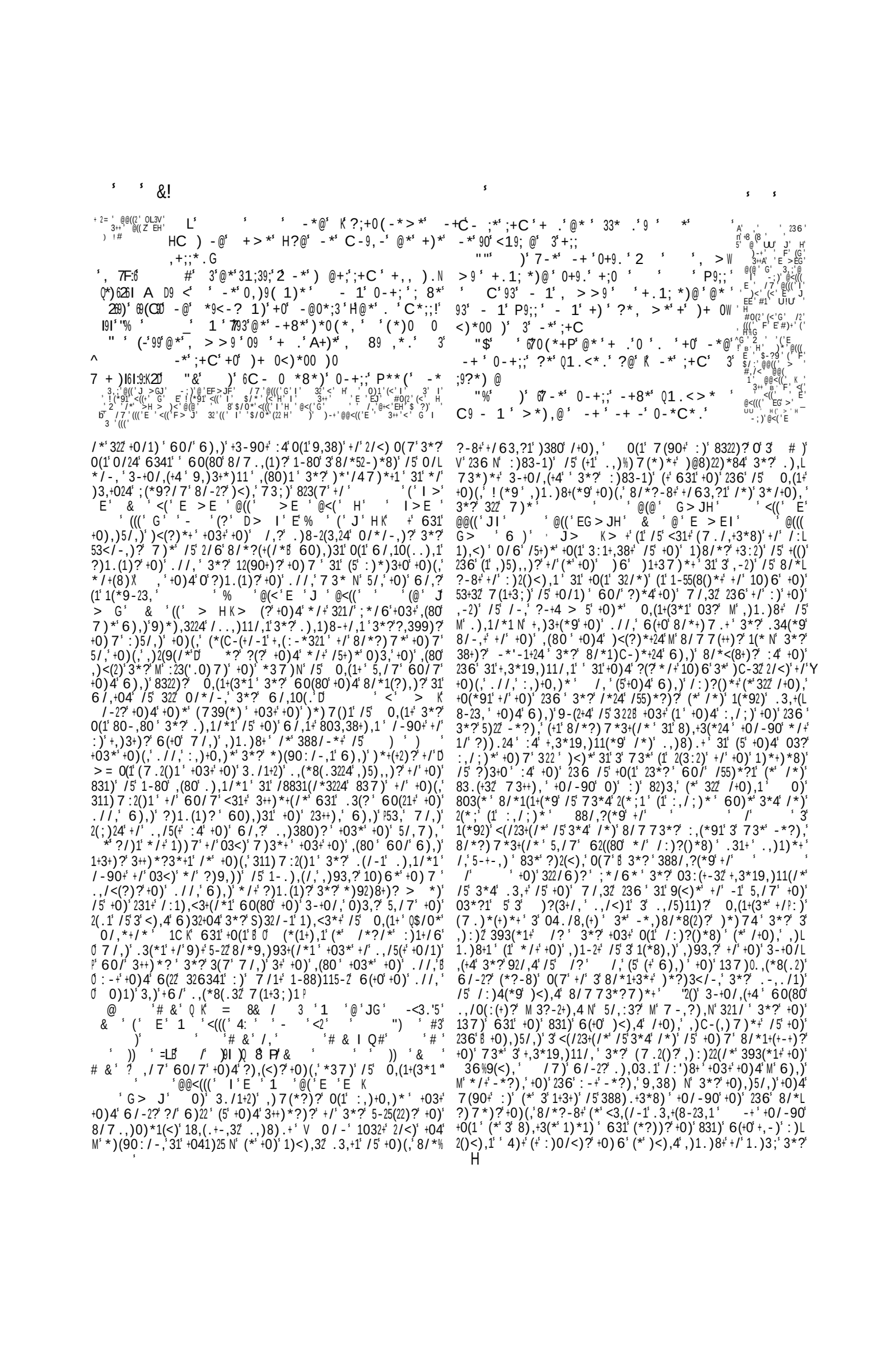


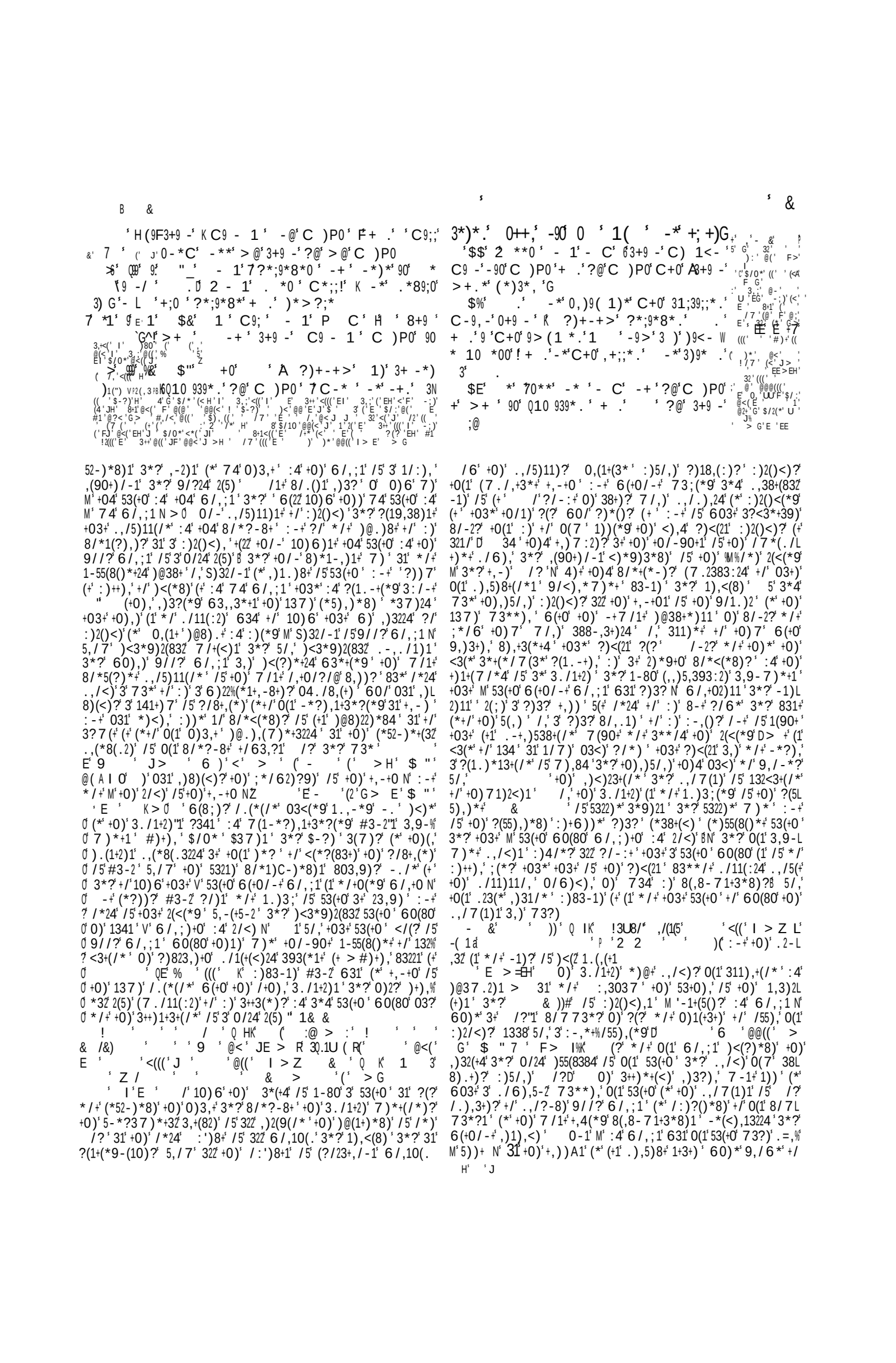


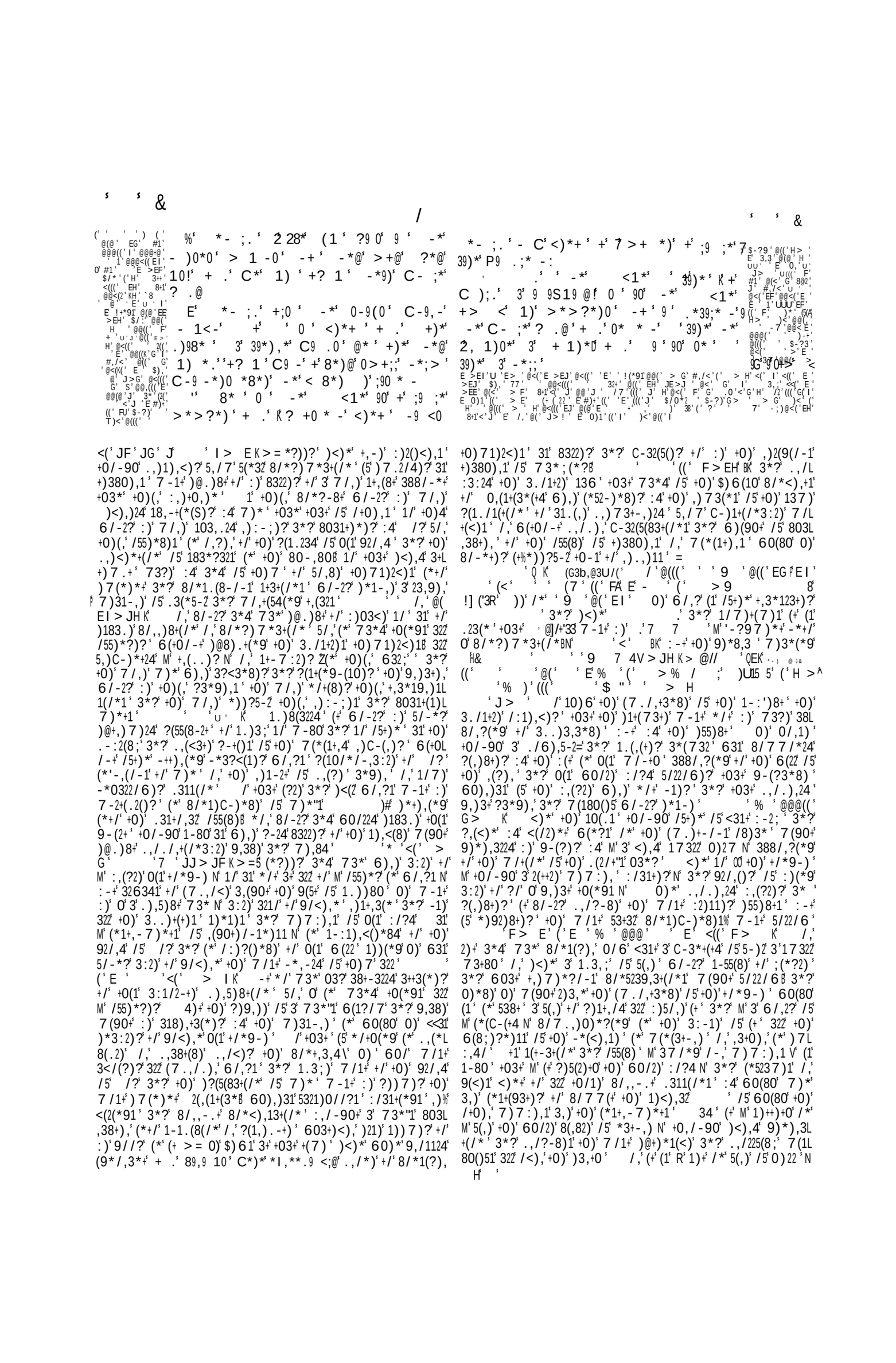












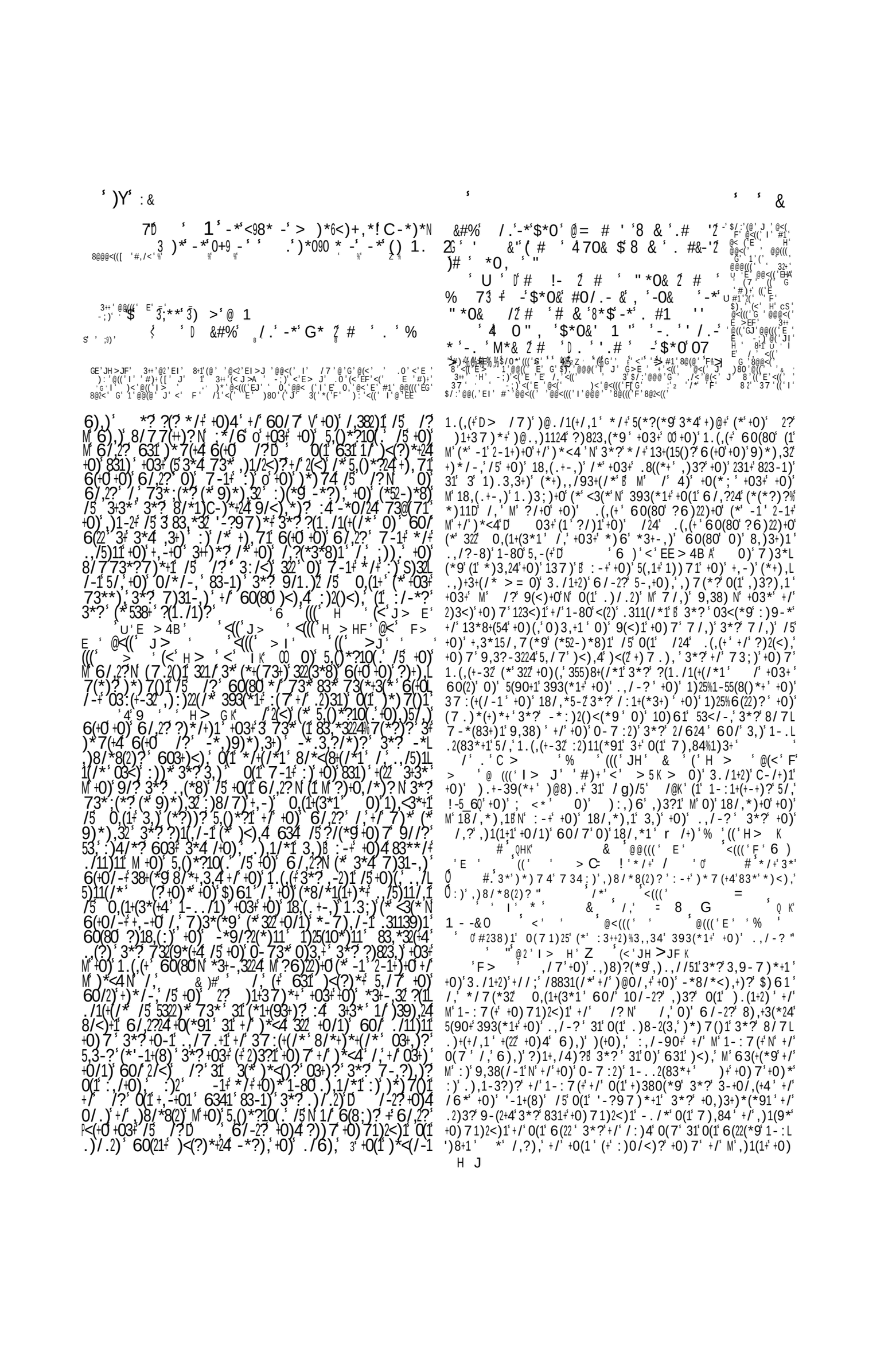
G ' H C - * ,*' , >*' C+)0' + .'
R +6' >39<- 9 <0'+> <'@ 1D 66! ' +'
-* ,*' ' 3' @ 1)' 2;10 0' -+ ' C+)'
6'9 '@ 1)' >*>?*)0'
$' *' K;10 ' + .' -+8*'
F(9 ;9:;+' ! .*09)*' ' -+8*'+ .',+ ' ? +9 !
N5 4601.*9 '@A' C+)'@* '@*' -+8*' '6?*N
t B' & ' 83-1 '48' 31;'*/+
6')6B6;6 3*A0 %' *' 6+0P ' + .')*,*98*' '?*,+10*
(((''?' ? ' = ' #,/<'('I' 8'(<'G' 3:'(((' ' (7'<'I ')',' ' '<((,
E' 3+' <2-' F[G' -;)'7&'I > J' $/0*'(<' '@<('EH' 5'(' 'F'$/:@@<(('G>
#1'@<' 'H ' @<('G' I' #,/<'('EG'@<'G'@@(' J'EF' 1'(' ' $), @(' H'@(<' E'
(8'(((''D')8O '<((' GA 3++'@@'EE' 3,;'@'JG' '$/0*'(((''EE'<' H

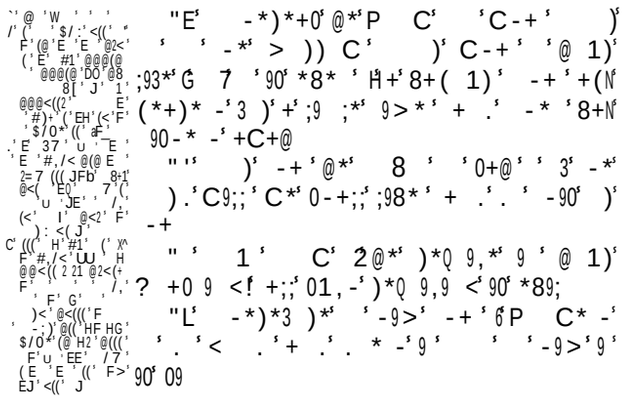
@*' +0P' + > 900' -+ ' A@*' > +@' , 01 > *']
1('@ 1)' ;10 0' 7
E' *' K+. 1; *)*)0' + .' +. 1; *)*00*0' 6F2'
P C' @*' ' -+ ' K -*' 3)9* .0-9('3
!'*@C' P9;;'90' K* >9 @' C9 -' .G' K C- N' K 9 H J' H
0 *8*)' -*)*3)*' C9;;'?*' +' 3)9* .' 3' -*' ;' '$/O*' ((' '
C);. ' 7F90' -*' * *>@' 3' . ' 32'((' ' /7 <0(' F
' ' ' @*' -9 P' -+ ' F' -*' 0,)9(1)*' +*' #1'@@('G' ;)'
0+9 -' 9 '8+9 ' H -*' 0(9)9' -+ ' . C*;;* -' H 899)^:
9 ' 10' ;10 * -' 7' * 8@G

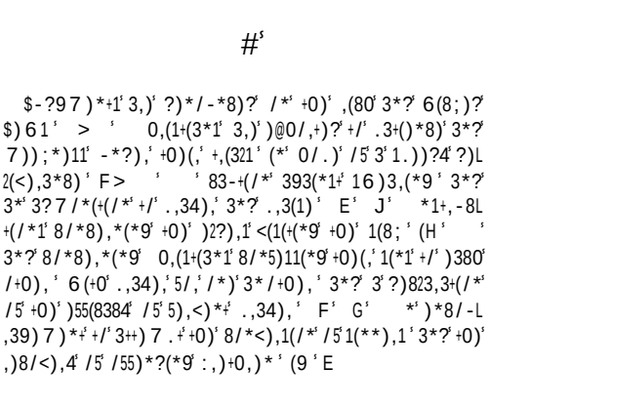
,)1.)8' /5 .),/1/*1' *3,,/6' ,)'-?(8)1' ((*? 3 0325 ,)2(9(/*'
31' 6)22 31' 04./8,(14' 3*? (*' /-' 6/,?1 3*? 6/,;1':)) 7L
.2/4)? 31' ,)38)%73;),1';+/' 1/6 +03' 9//? 1))?' 60(80
4()2?1' M+0)'5,-(+1' /5',(90+)/-1*)11' N /*)3,+0';+/'+0)' 92/,4
/5 /? 3*? +0)' 132<3+(/* /5 7)*' 3*? 60(8(' ;)1' 1)8-,)1
0'+0)' .)38)3:2)'5,-(+1' /5',(90+)/-1*)11' _';+/' /-',/6*' 1/-21

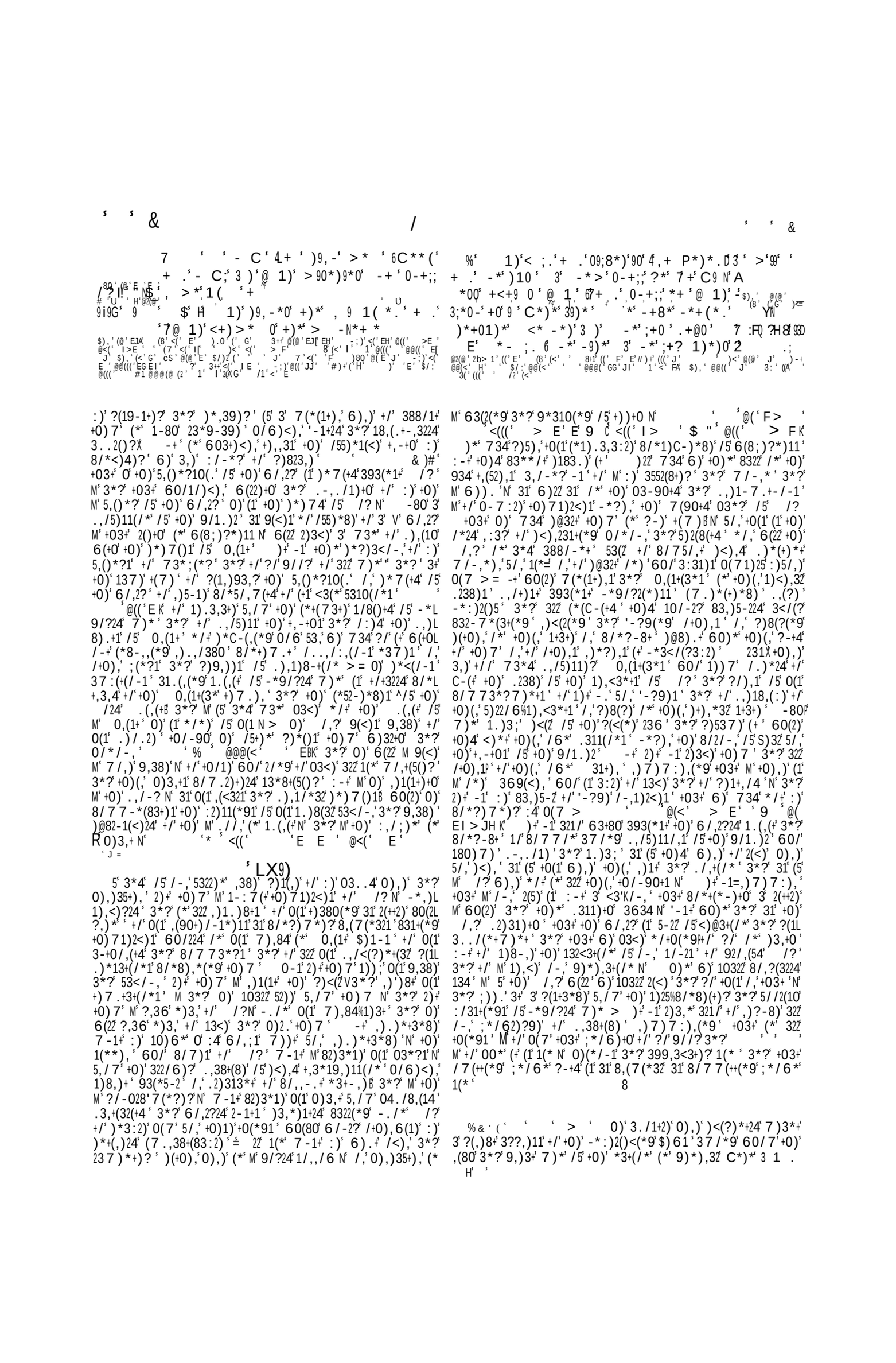
$ +' ' ' 2>%' '(((' "%X "# B' 0)' 3./1+2)'
(1' 9)*),3224 1- . . /1)? +/ 03<)' (*' +0(1' .238)' 3??,)11)?' +0)'
-*8/*<),+)?$)61' +/' +0)' 8/*?-8' /5 60/7' 0(1 23*9-39)'
(1' .)8-2(3,24 3. ,2(83:2)' 388/,?(*9 +/' +0)' 0(1+/,4 /5 +0/1)'
+(7)1' *?))?' 6)' 83*' 183,8)24 8/*8)(<)' +03' ,)1/*1'
8/*+(*-(*9 7)7:),1 /5 +0)' 0,(1+(3* 80-.80' 3' 1/)3,24 3
.),(/?' 6),)' 9-(2+4 /5 +0)')*/,7(+0)1 0),)' 7)*+(/*)?B
+0/-90 +0)' .311139)' 3231X (1 3. .2(83:2)')*/-90 +/' */7(*32
0,(1+(3*1 (* 1- :1)C-)*+' 39)1' -+' +0)' 3./1+2)'1)) 71 +/'
03<)' 83-+((/*)?0(1' 0,(1+(3* :,)+0,)* 393(*1+,)*<4' 1+,(5)'
3*?37:(+(/*' 60(80 93(*)?9,/-*? 6(+0(*+0)' 80-.80' :4
+0)')@37.2)' /5 +0)' $)6(10' *3+(/*B 3*?+0)' 1+(22 7/,)' +,)L
7)*?/-1')55)8+1' 60(80 1.,3*9 5,/7 +0)' 13(0)' 83-1)1
37/*9+0)7' ')'0/6)<),')7.2/4)? 1-80 23*9-39)' 31
6/-2? :)'3?(,)8+3*? ./(*+)?3??,)11+/+0/1)'$)61' 60/
7(90+' 03. .)*+/',)3? 0(1').(1+2)' 60)*0)'13(?' o' ,/7
M 60)*8)8/7)' 63,1 3*? 5(90+(*91 37/*9 4/-DN /',(+
631)<(?)*+'+03+' M+0)'*3+(/* 631 ?(<(?)?393(*1+(+1)25 N
3*?1.2(+'(*+/' .3,+(0)1' 60(80?)1+,/4)?)380'+0),':4 7/1+
5-,(/-1 8/*+)1+1' 60(2)'+0)(,8/*+(*-32' (*1-,,)8+(/*1 6),)'
?,36(*9?/6*?)1+,-8+(/*/*+0)7 5,/7+0)' /73*.,/6)'
(? */+0)1)'8323 7(+0)1 3,(1)'5,/7 +0)(,M2-1+1 N /',+0)(,'
) & ' +03+(1 5,/7 +0/1)'8/,,-+.311(/*1 60(80+0)4
1/-90+ +0)(,..2)31-,)(*9,3+(54(*9D 0)1)'2-1+1 63,,)?
o'(*+0)(,7)7:),1B')(+0),'(*+0)'7)7:),1'/5+0)'8/,L
,-+'*3+-,)'+0)'/?? ?37,'(*' 60(80 /*)'2-1+' 63,,)?
393(*1+' 3*?+0),' 31' 32' 8/-2? */+':)'9,3+(5()?' 3*?)380
1+,/<)'5/,'+0)'731+),4' /,',3+0),'o "# +0)'7)7:),1 N /5
+0)(,':/?()1' 60(80+0)(,'83,*32' .311(/*1' 6/,:(*9 6(+0(*'
3*?/<),8/7(*9+0)' 5))2)',)1(1+3*8)'/5',)31/*3*?8/*L
18()*8)'73?)'-1)'/5 31' 6)3./*1'/'o'(*1+,-7)*+1'/5 -*%
V',(90+)/-1*)11 N 5/,=+),.)+,3+(*9+0)(,'8 7(*32.-,./1)1'
' <' E' "%' " >" ' <((' $$X $' B' 0)4
)39),24 8,3<)? 6/,2?24 .,/1.),(+4' 3*? +0)' 1)<),32 (*L
?-29)*8)1' 8/**)8+)? 6(+0(+' .-+ +0)4?(? */+' ./11)11
+0)7B 3*?'(*' 8/*1)C-)*8)'/5 +0(1' ?(13,./(*+7)*+' +0)4
6),)',)3?4+/' 7-,?),'/',38+-32?4?(? 7-,?),'1-80 .),1/*1
31' 1+//? (*' +0)(,'634' 4)+ +0)4 8/-2? */+' 35+),'32' /':+3(*
+0)' 3?<3*+39)1' 60(80 +0)4 1/ (*/,?(*3+)24 8/<)+)?' 0(1'
+0),)5/,)' ,)*?),)? +0)7' 1+(22 7/,)'<(/2)*+' 3*? (*+)1+(*)
?(18/,?1' 3*? .-:2(8,' (*1-,,)8+(/*1 6),)')@8(+)?B :-+ (*L

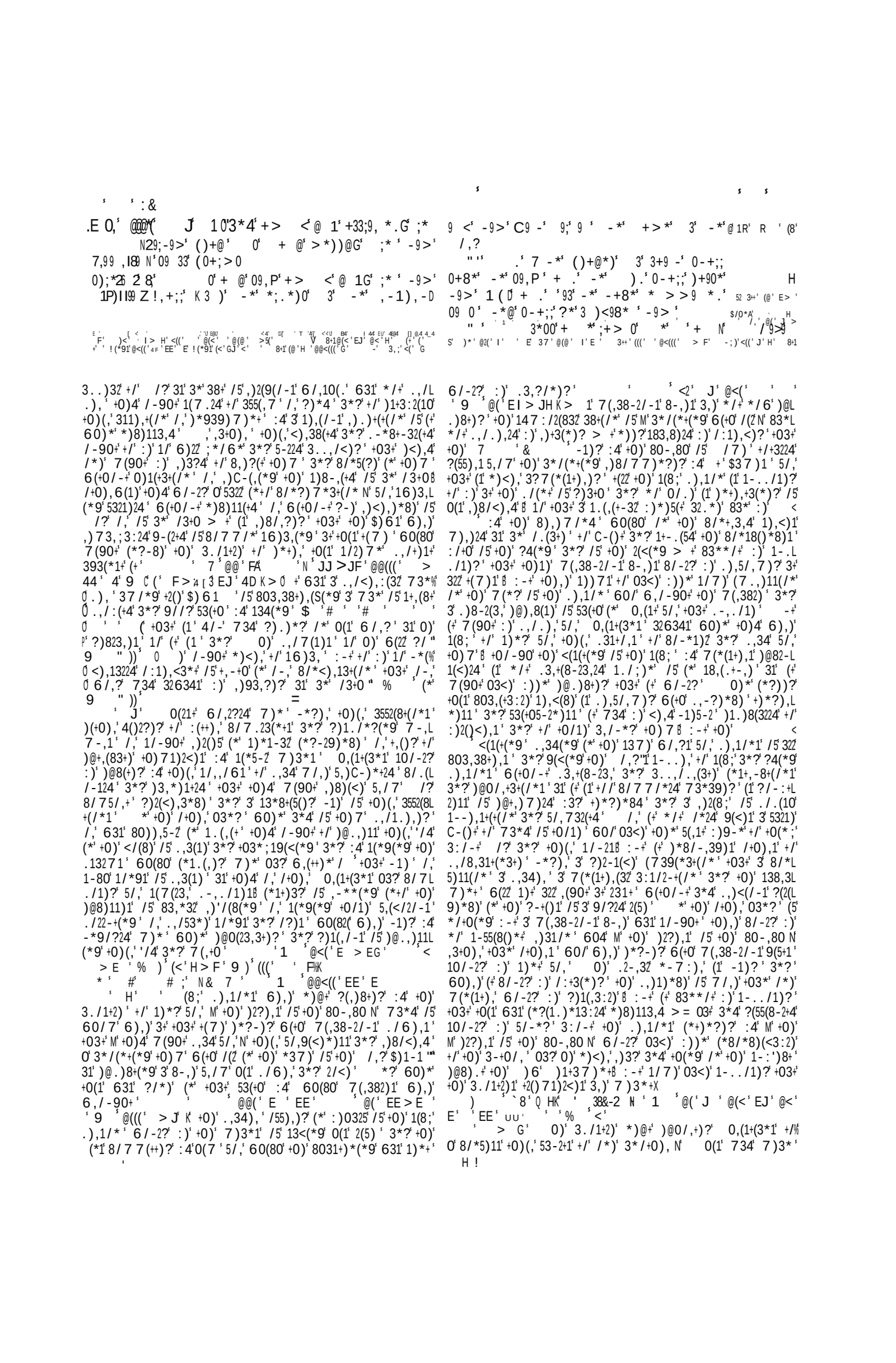
1+)3?' /5' .,/1.),(*9' :4' +0)7' +0)4' 6),)' +0)' 7/,)' (7L
./<),(10)?' 3*?' ?(1+,)11)?' 3*?' ,)?-8)?' /5+)*' 327/1+' +/'
?)1.),3+(/*' :)83-1)' +0)4' 1/-90+' */+' +0)' ?)1(,)?' :)*)5(+1'
5,/7' /?' :4' .,34),' 0(1' 1))71' +/' ,)5),' +/' +0)')39),'
?)1(,)1' /5' +0)' $)6(10' *3+(/*' 35+),' +)7./32' .,/1.),(+4' 3*?'
2(:),+4' 5,/7' +0)' /73*' 4/;)'(3*?' +/' +0)' <((/2)*+' 3*?'
(7.(/-1' 7)31-,)1' 60(80 +0)4' 3?/.+)?' (*' /,?),' +/' /:+3(*'
+0)7B 5/,' +0)1)' 7)31-,)1')55)8+)?' */+0(*9')@8).+' +0)'
(*8,)31)' /5' +0)(,' 7(1),()1'' 3*?' +0)4' 6),)' 031+)*(*9' +0)(,'
/6*?)1+,-8+(/*' :)83-1)' +0)4+,-1+)?' */+' (*' /? > /7)'
/5' +0)7' 0/6)<),' (+' 7(90+' :)' 1- . . /1)?' ;).+' -.' +0)'
5/,7' /5',)2(9(/*' 3*?' .,34)?' 5/,' 2(:),+4' 5,/7' +0)(,'/.L
.,)11/,1' 3*?' 5/,' +)7./32' .,/1.),(+4' :-+' +0)4' ?(?*/+'
,)8)(<)' 603+' +0)4' 31;)?' 5/,' :)83-1)' +0)4' M' 31;)?' 37(11' N'
+0)(,' <),4' .,34),1' 6),)' ?(8+3+)?' :4' 1)25(10' 3*?' 6/,2?24'
355)8+(/*1' +0)4' 6),)' .,)1)*+)?(*' 3' 5/,732' 73**),' 3*?' :4'
+0/1)' 60/' 8/*+(*-)?+/',)')8+' +0)(,')11(30' <3(*24')@.)8+L
(*9' 3+)7./32?)2(<),),' 60/7' +0)4' 6/-2?' 923?24' 03<)' 6)2L
8/7)?' /' +03+' +0)4' 31;)?' 5/,' 6/,2?24' 3?<3*+39)1' 3*?'
./11)11(/*1' 32/*)' 3*?(*' /,?),' +03+' +0)4' 7(90+' 1.)*?' 3*?'
631+)' +0)7' (*' 9,3+(54(*9' +0)(,'.311(/*1' <(((' F > ' UU' E > EJK
W FA' 7 R ,362(*91 N' 4' 9 '
<((' E' -' (((' EJ' -' (((' I' /**)8+)?' 6(+0' RW)]AV(('
(+' 1))71' +/' 7)3*' / 'J(*' +0)' -1-32' 1)*1) > & 8'
P `6<' J' $ 658)<2((' H' (+' (((' J' E,#)+' (((' J' #),03.1'
5,/7') & I * '# & " ' < 1' 2 ' 3
,' V' 4' 4/-,' 7)7:),1 N > 1 ' QJK = 7 .')#'
/+')#'/ '')#' '/))#' - & ')#'d' 5/,'8/<)+/-1L
*)11' /,'1)*1-32' 2-1+1' ?(8+3+)?' +0)(,'.,34),1' % ' @@(
EF' /+)'(' > GK
' > 0)' $)61' 6),)' 1+(22' +0)' .,/5)11)?' 6/,10(.L
.),1' /5' /?' 3*?' +0)' *3+(/*' 03?' :))*')1./-1)?' +/' 0(7' :4'
1.)8(32' 8/<)*3*+B (?/23+,4' +0),)5/,)' 3*?' /+0),'?(,)8+'
<(/23+(/*1' /5' +0)' *3+(/*32' 8/<)*3*+' 6),)' 1.(,(+-32' 2-2+),4D'
3*?' +0)' ,)')8+(/*' 3*?' 8,-8(5(@(/*' /5' +0)')11(30' 631' +0)'
9,/11)1+' *1+3*8)' /5' +03+' 8,(7)' 0(80' 8/-2?' :)' 8/7 7(++)?'
0)4' 7/,)/<),' (?/2(S)?' 6/,2?24' (*+),)1+1' 3*?' .2)31-,)1' (*'
+0)' 7/1+')@8)11(<)' 73**),B' 31' (5' +0)1)' 03?' :))*' +0)(,'
./,+(/*' 3*?' ,)2(9(/*' */' 53,+0),' <32-3:2)' +03*' 31' (+' 1-:L
1),<)?' +03+'.,(73,4' /:')8+' +' (1' 321/'.,/:3:2)' +03+' 73*4'
*/7(*32' 0,(1+(3*1' 03?' ,)*/-*8)?' 8/*8)32)?' /,' :)2()?'
+0)(,'.,/5)11(/*' 5,/7' ,)93,?' +/' +0)' 6/,2?' +/' 1-80' 3'
?)9,))' 31' +/' 7),(+' +0)' 1)<),)' ,):-;)' 8/*+3(*)?' (*' +0(1' 3?L
?,)11' /+0' ?)18,(.+(/*1' 7(90+' '-1+24' :)' 8322)?' 0' 3?-2%'
0' +),),1' 3*?' 3?-2+),)11)1 N' (*' ,)1.)8+' /5' +0)(,'-*53(+05-2L
*)11' +/' +03+' /?' 60/1)' .,/5)11)?' 6/,10(..),1' +0)4' 6),)'
+0/-90' .),03.1' */+' 9-(2+4' /5' 3?02+),4' (*' +0)' 8/7 7/*'
388).+3+(/*' /5' +0)' 6/,?' 31' */?/-:+' 73*4' /5' +0)' $)6(5

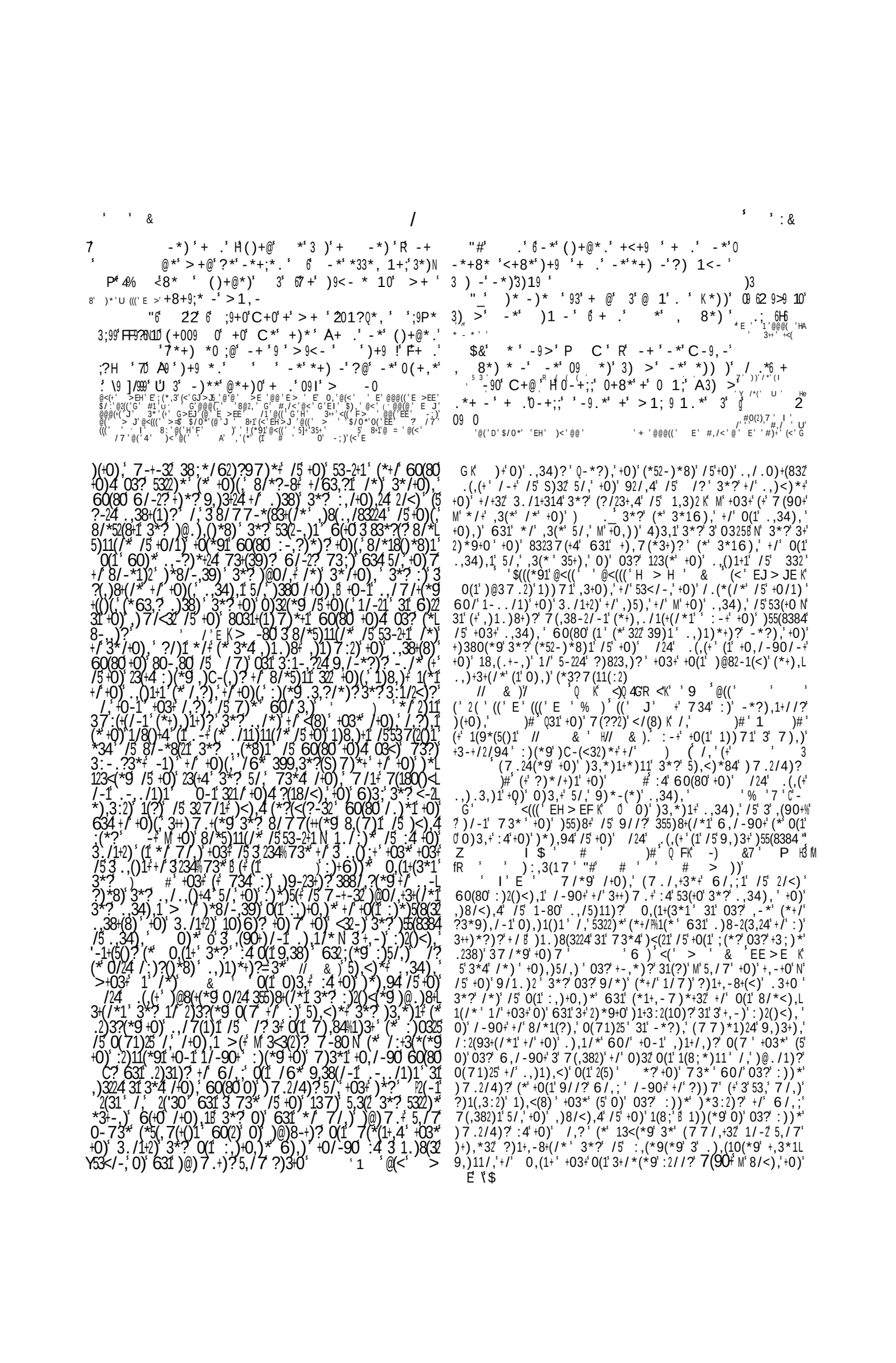


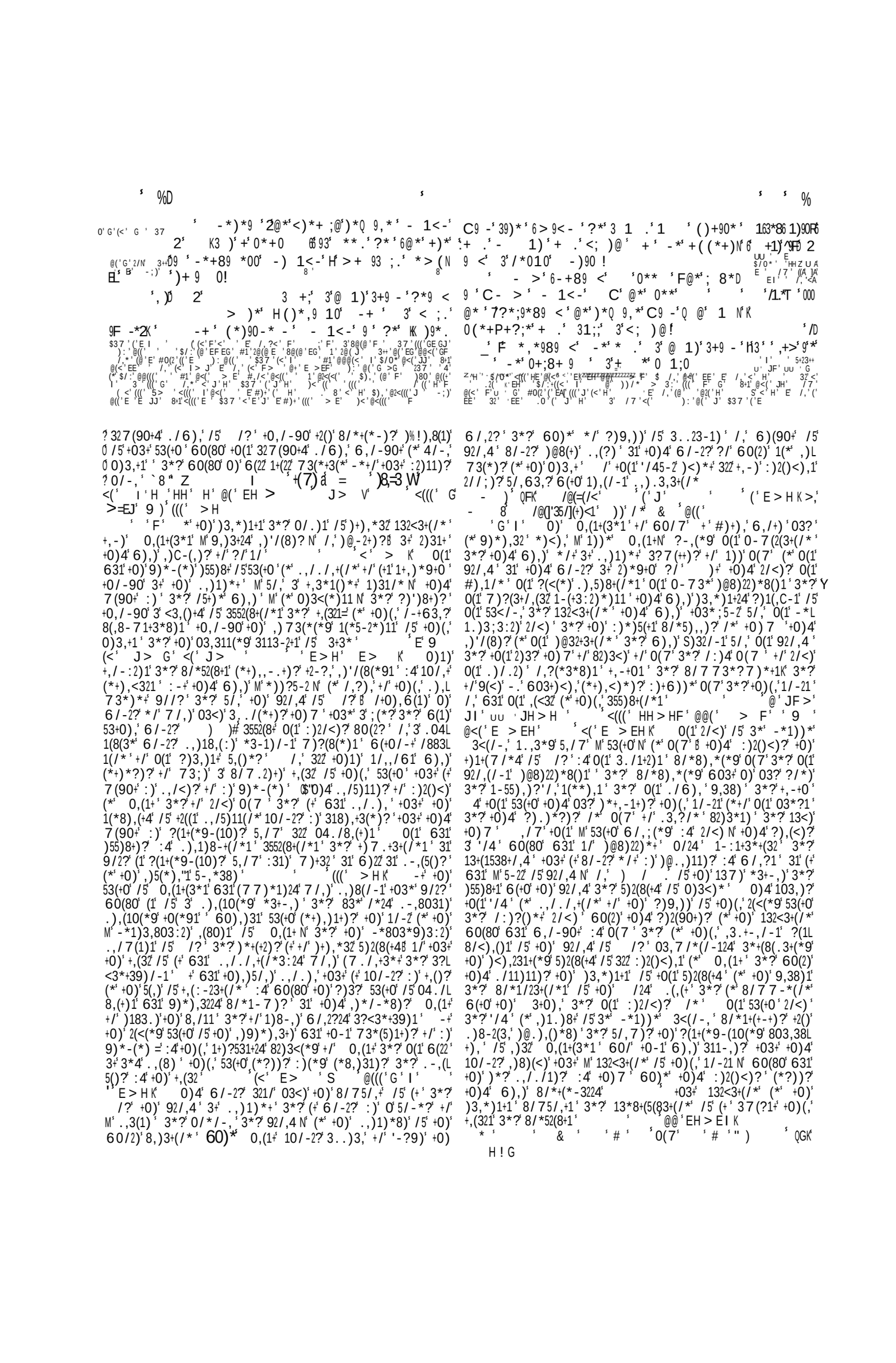


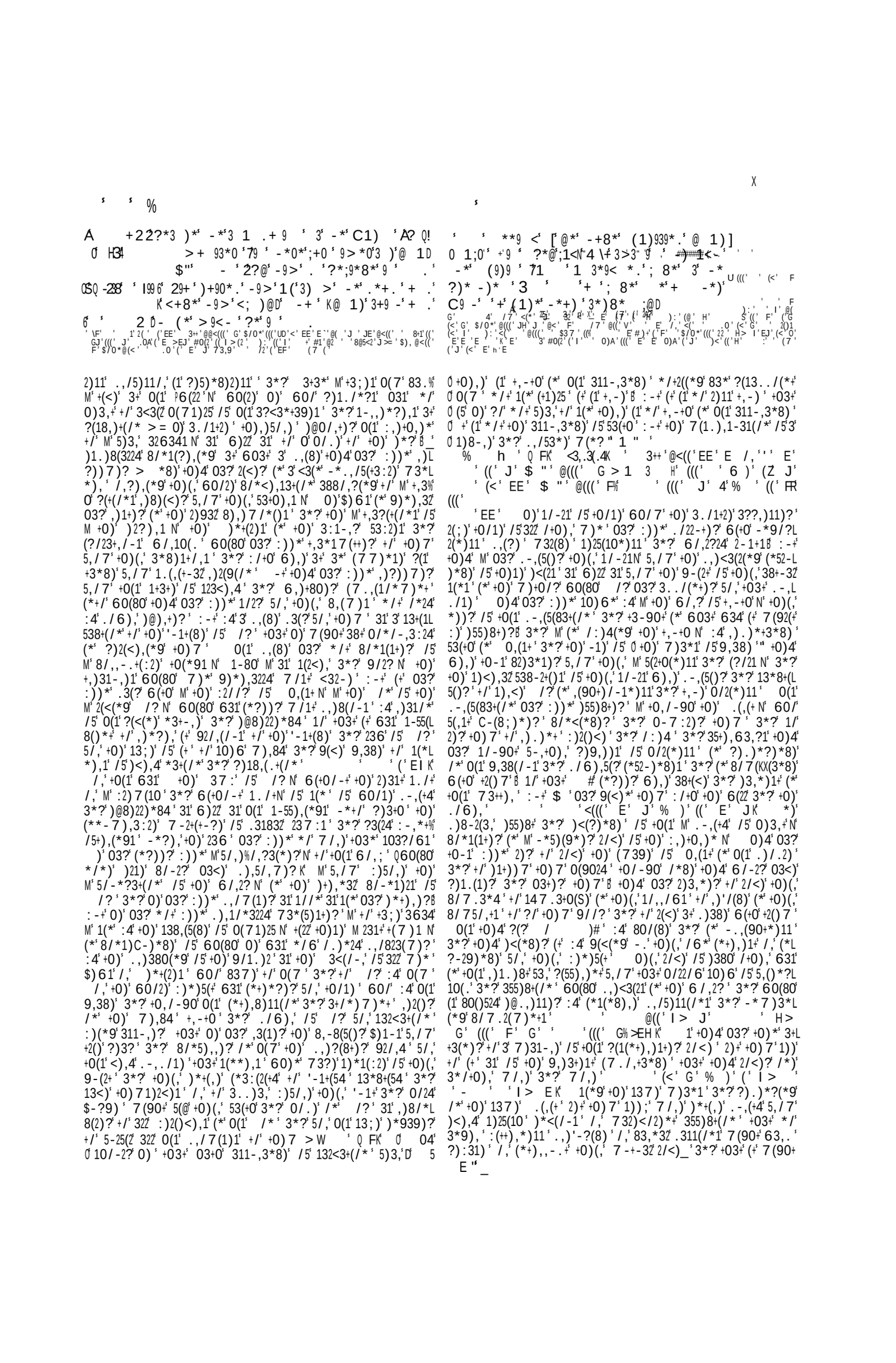


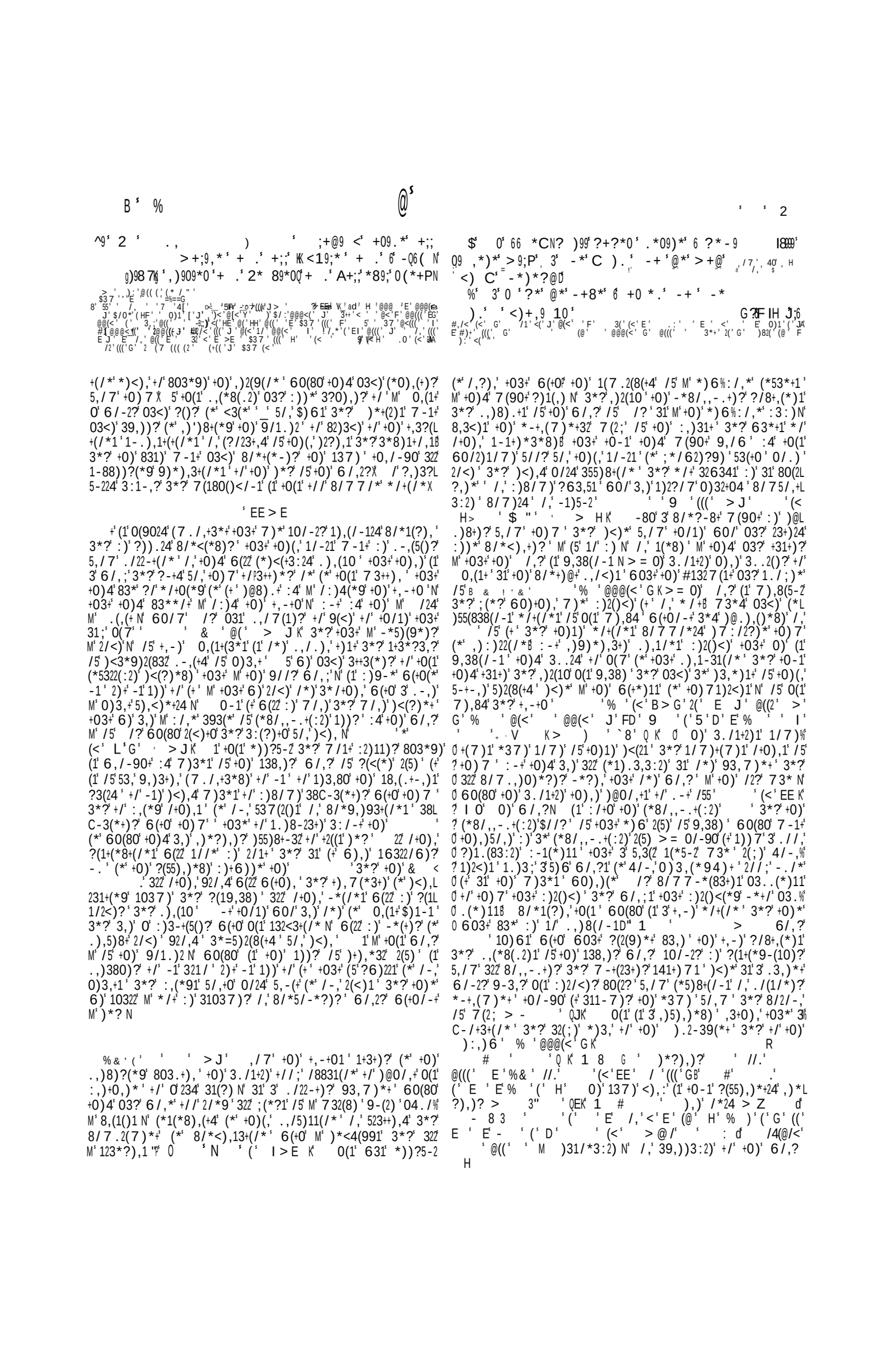


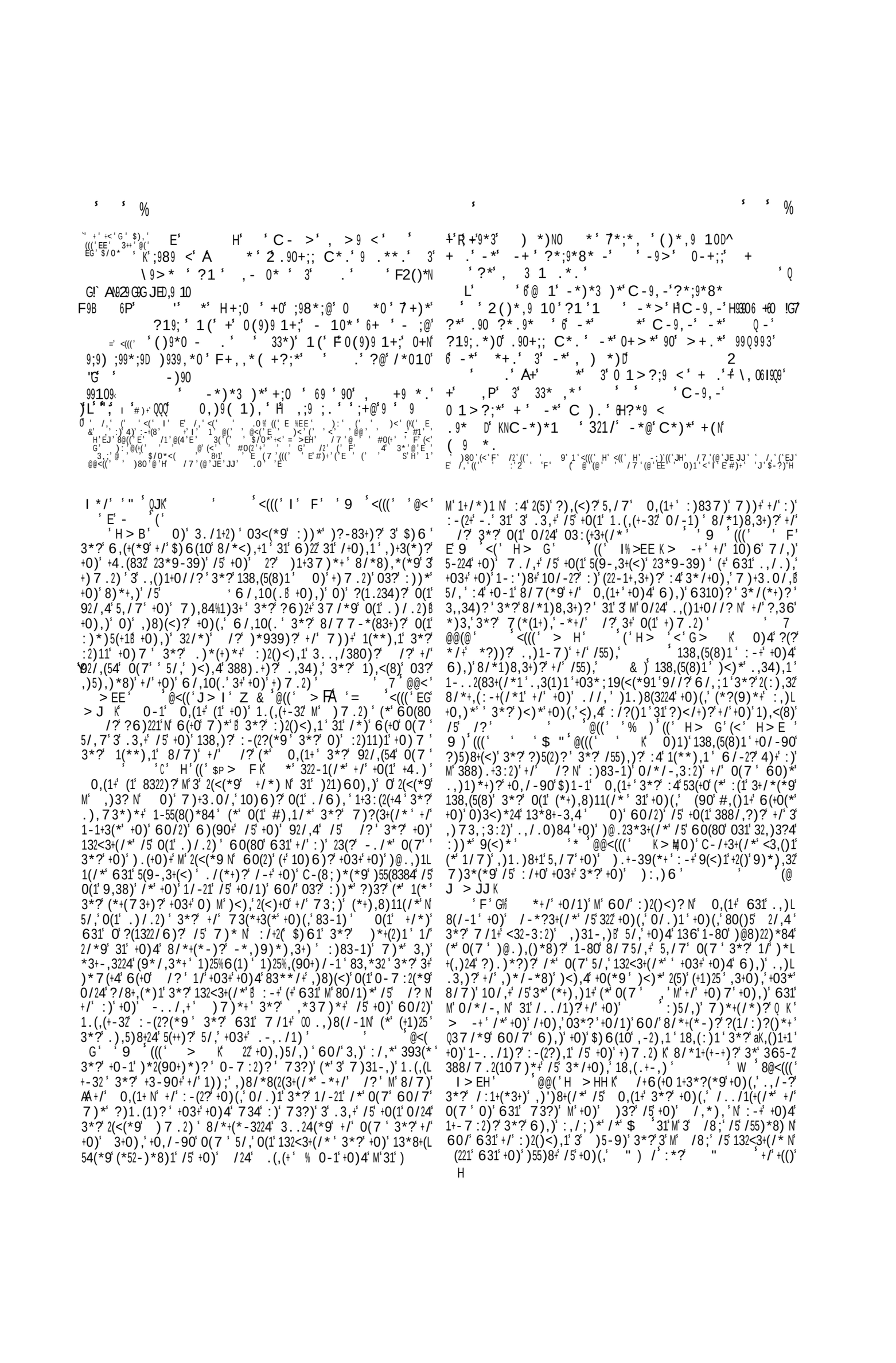


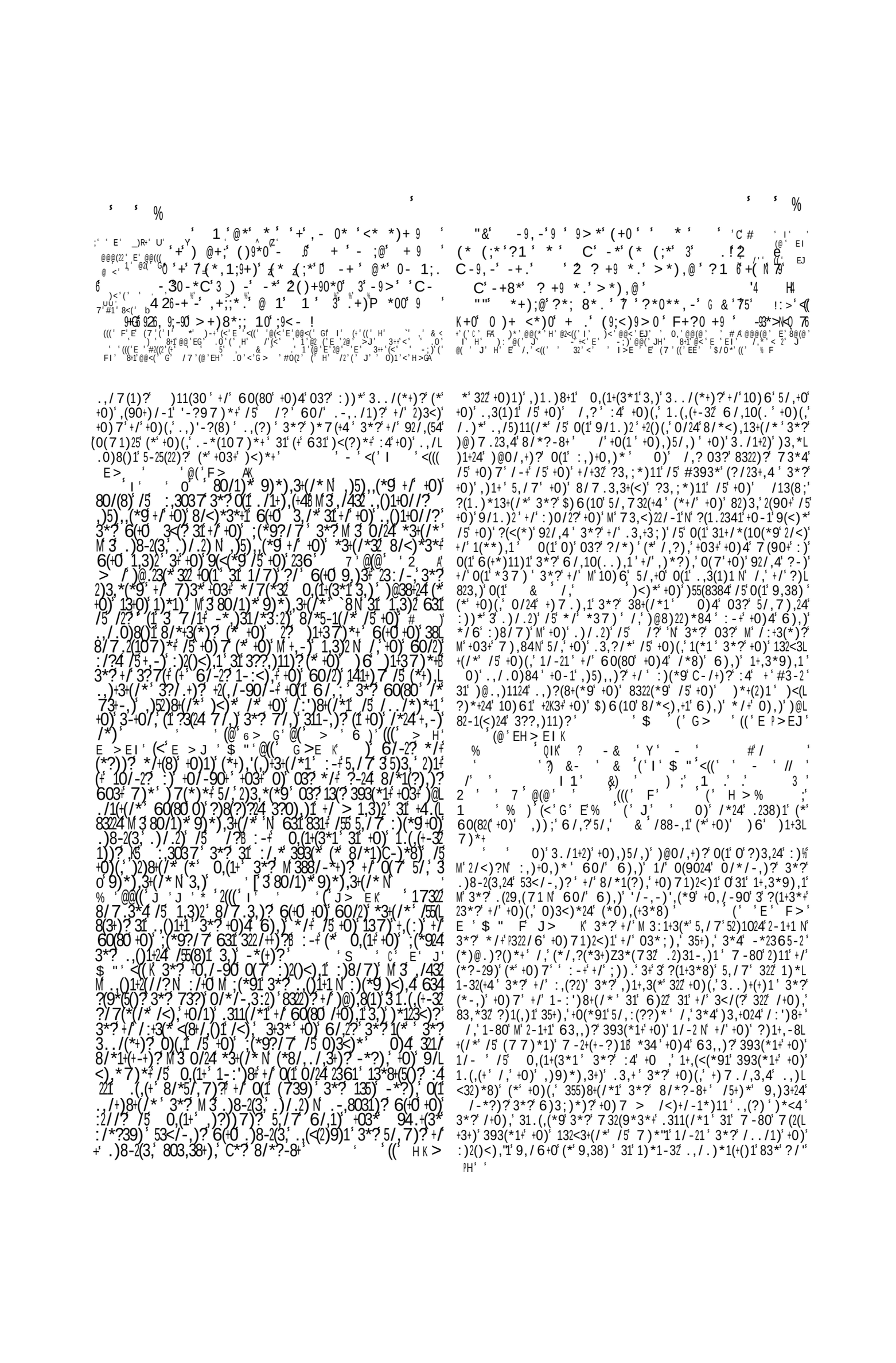


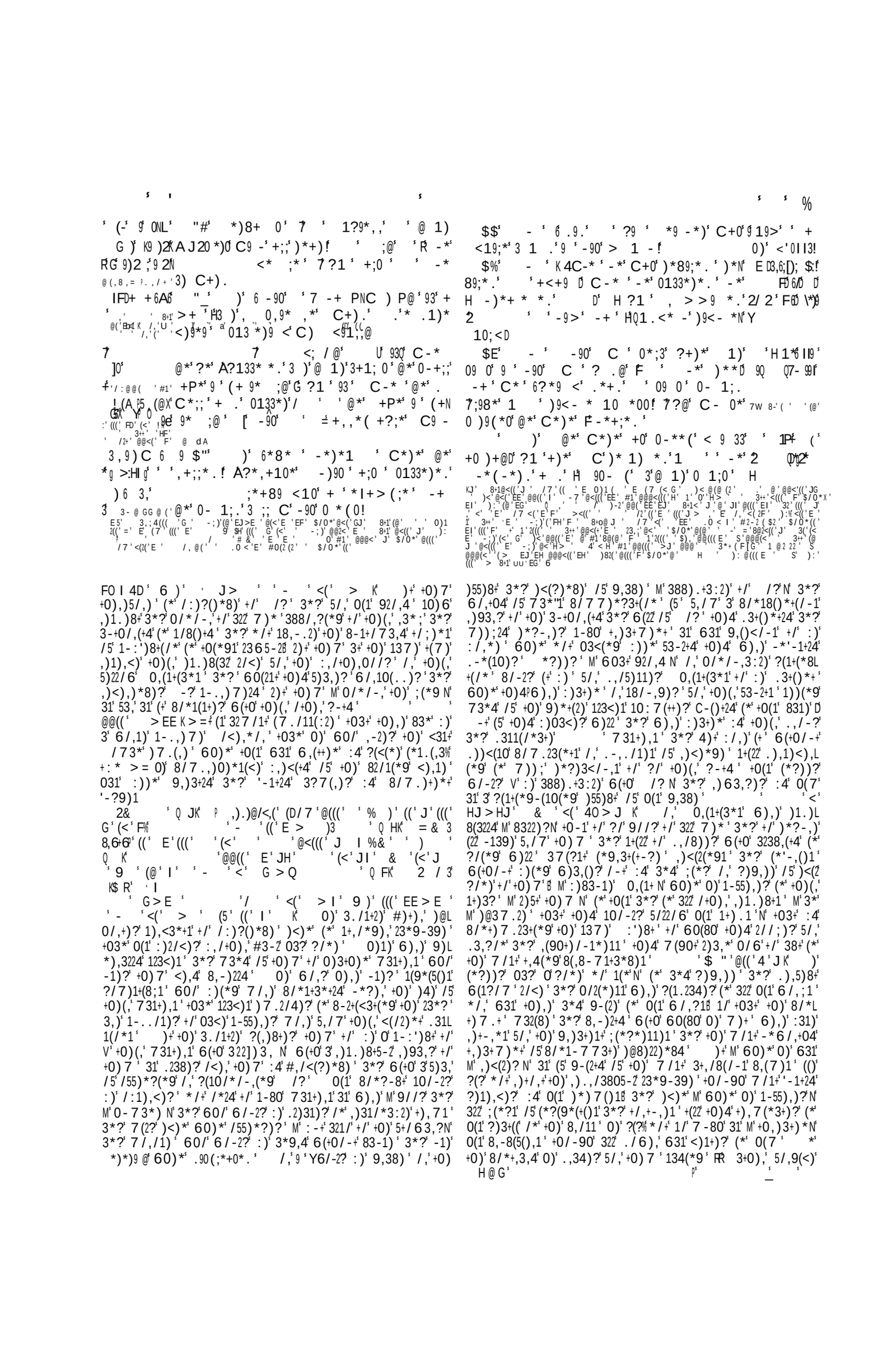


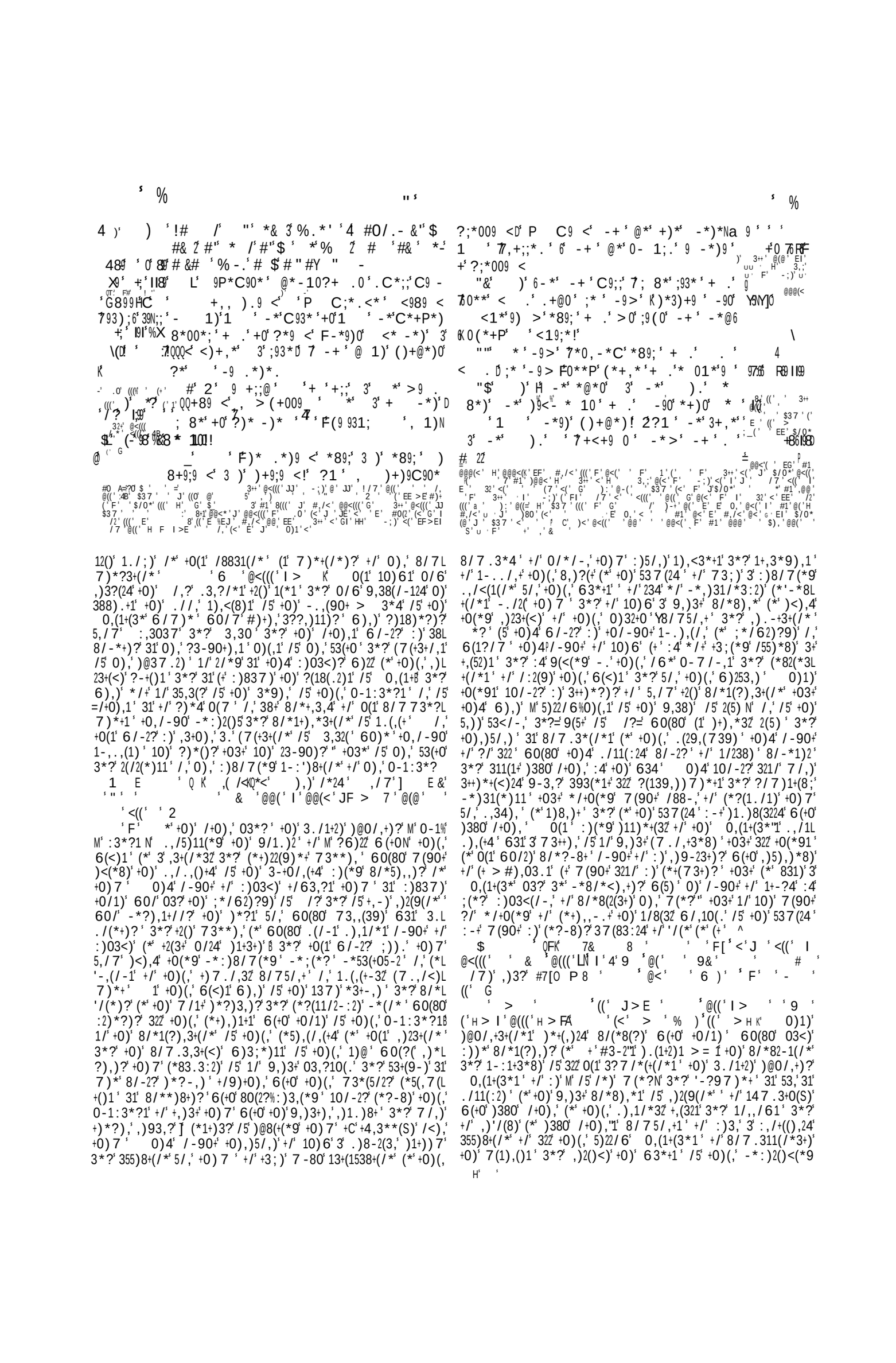


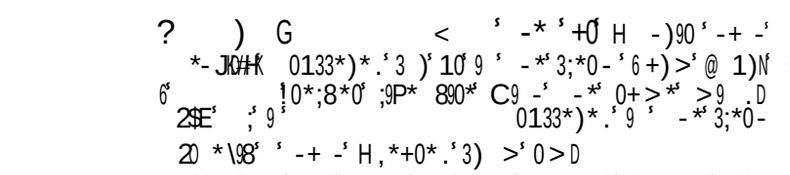


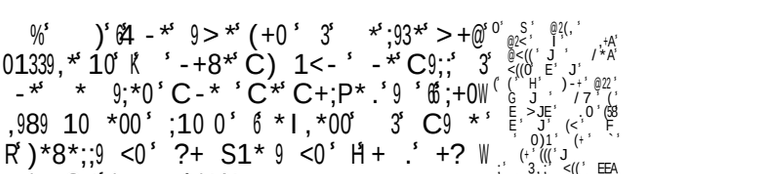


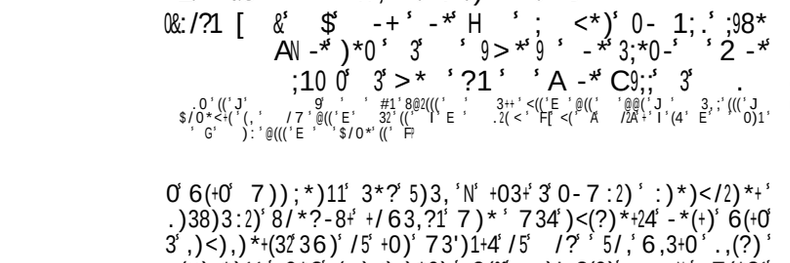


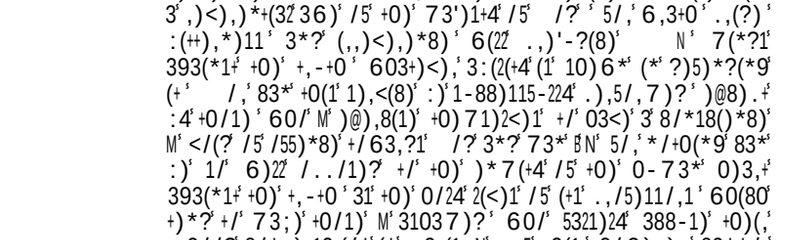


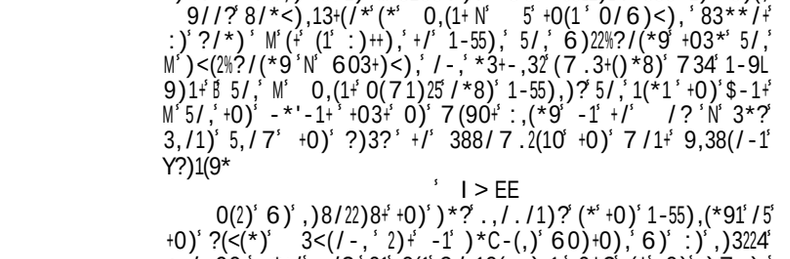


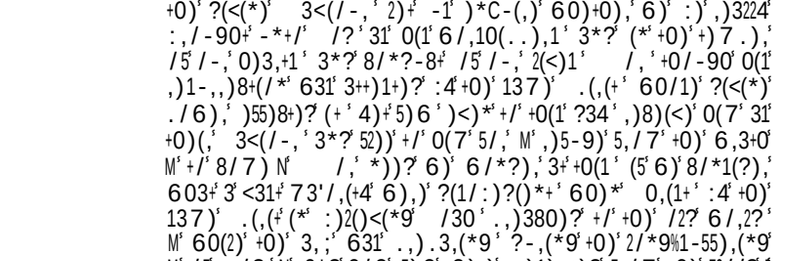


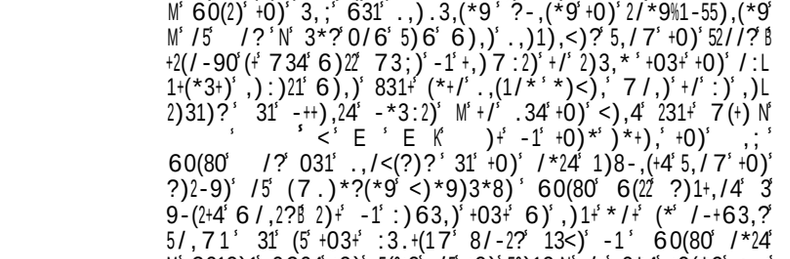


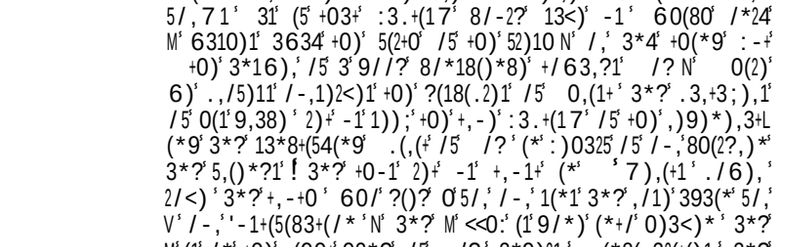


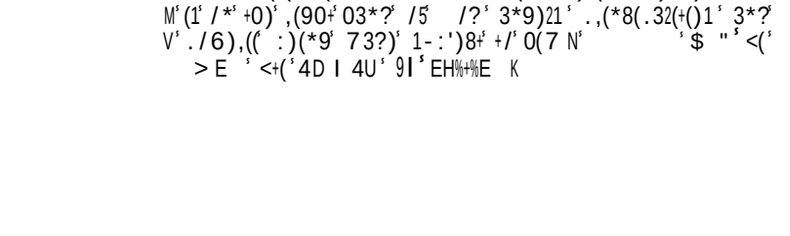


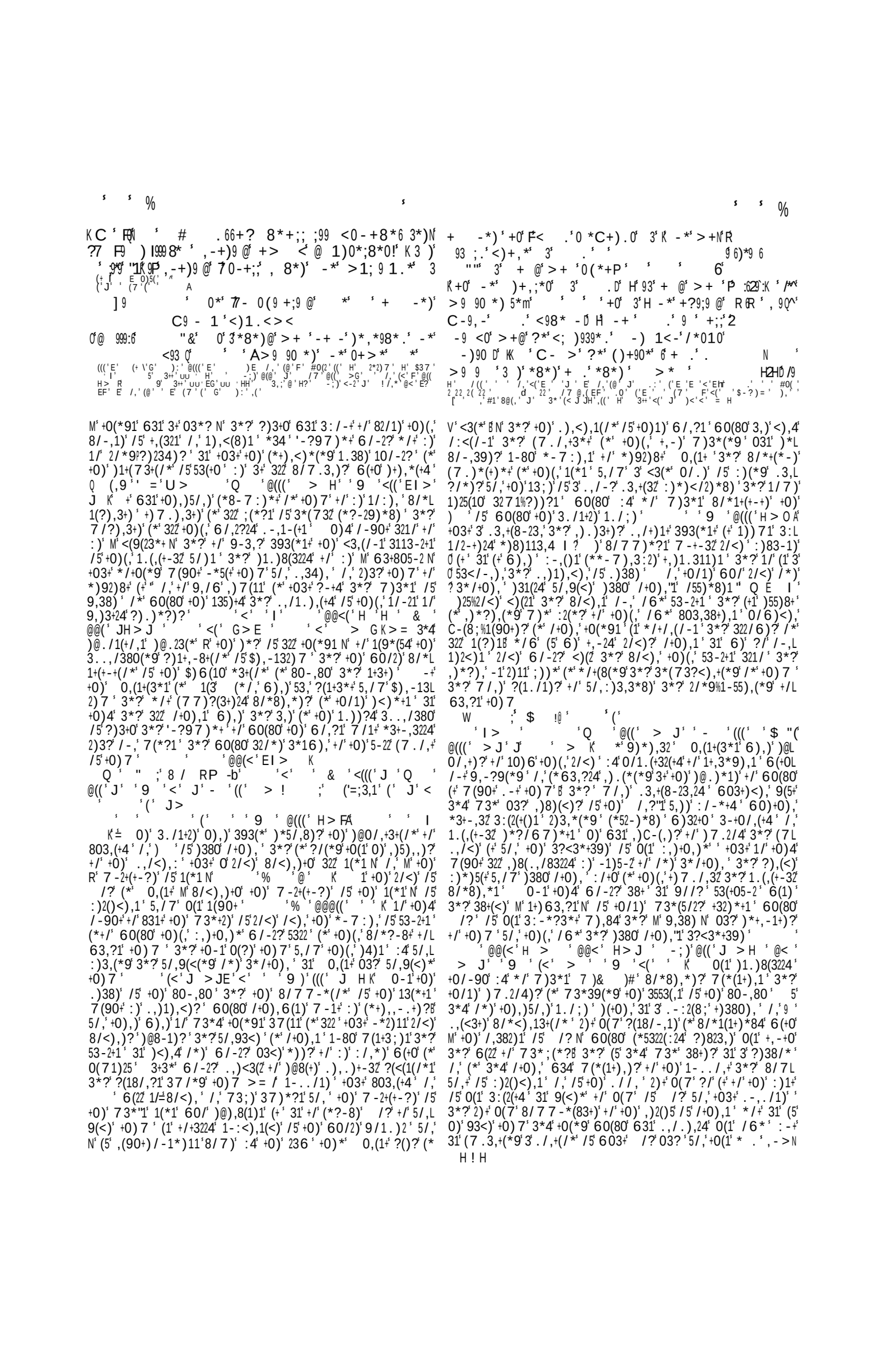


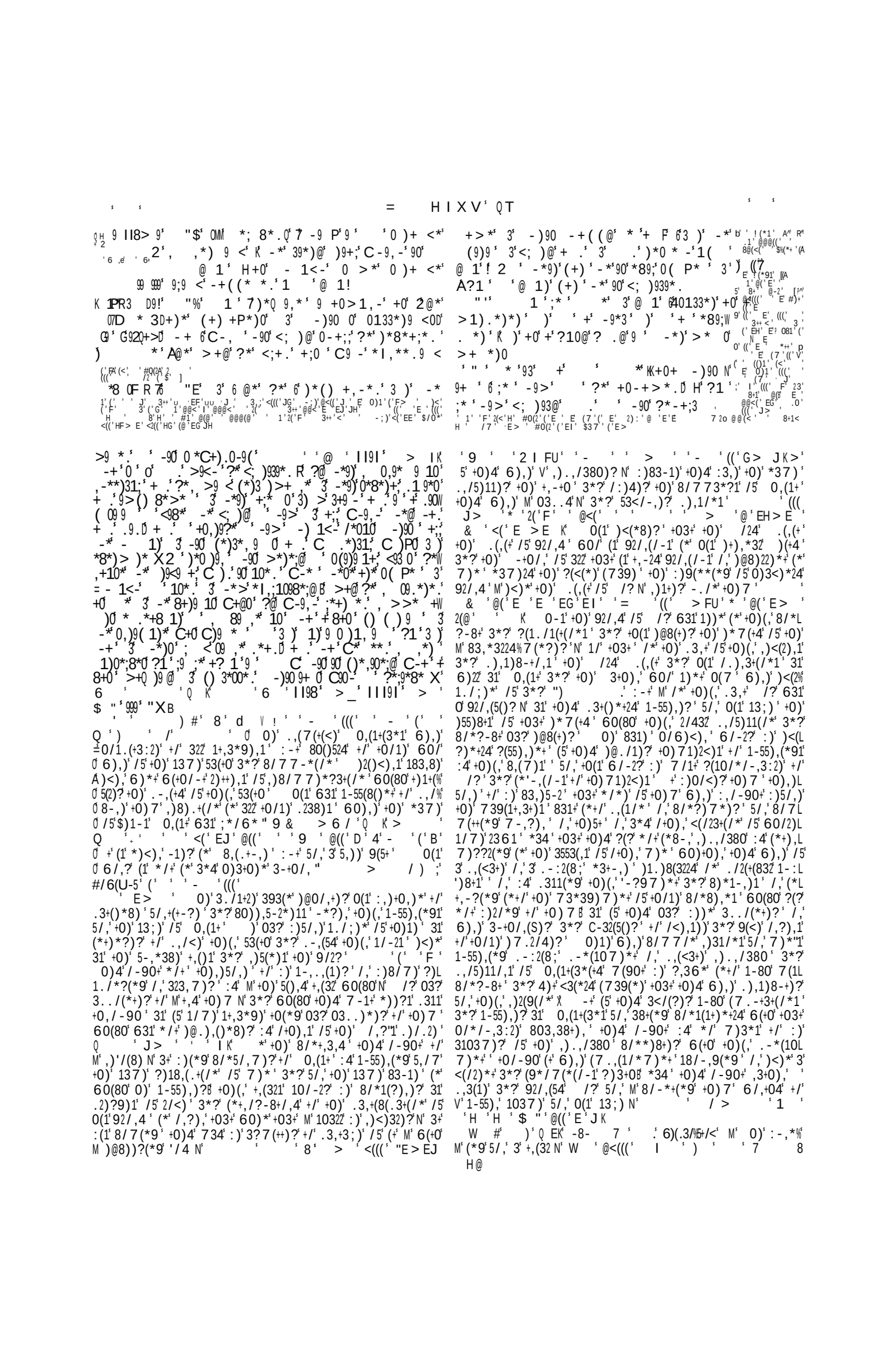


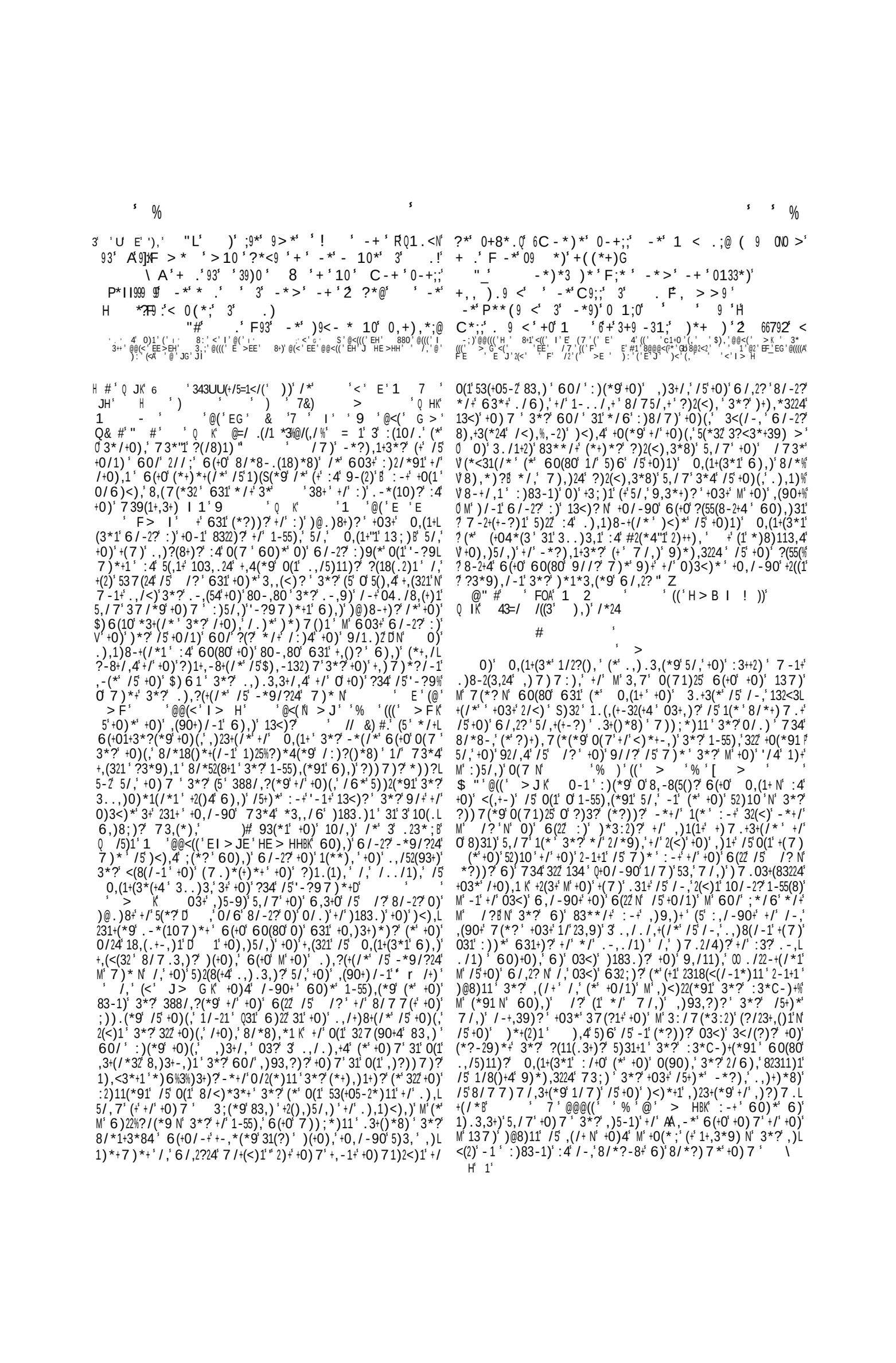


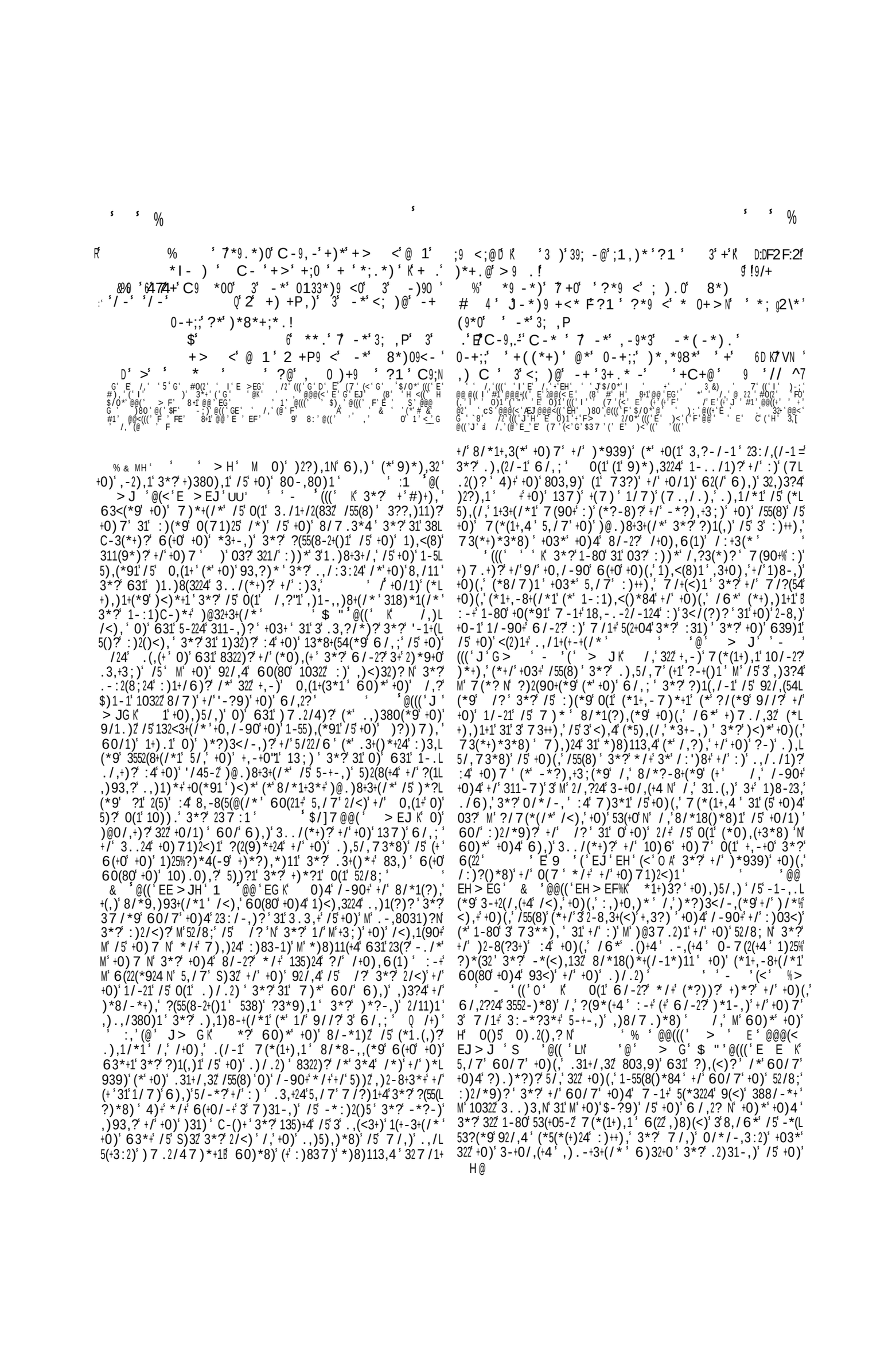


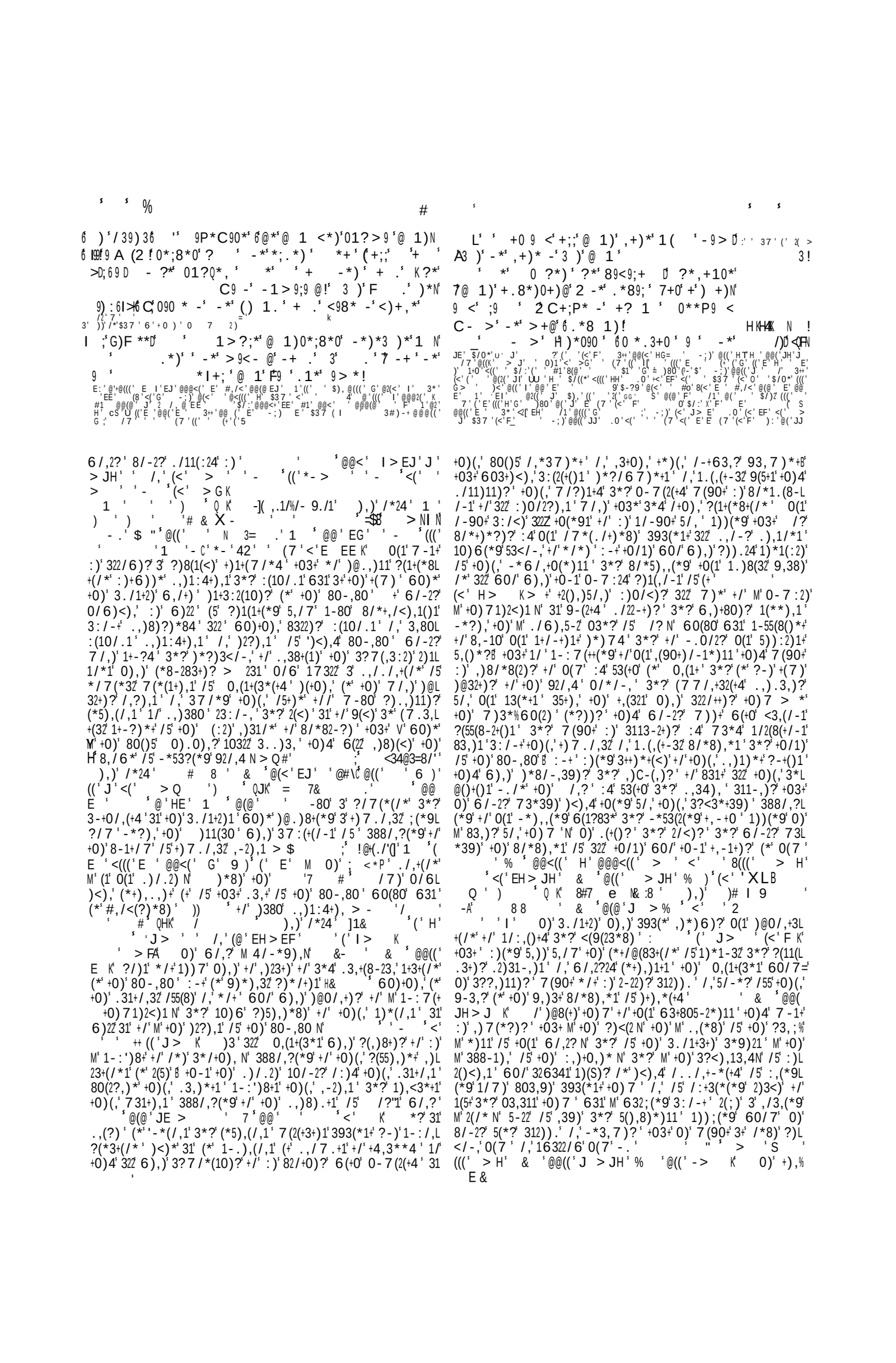


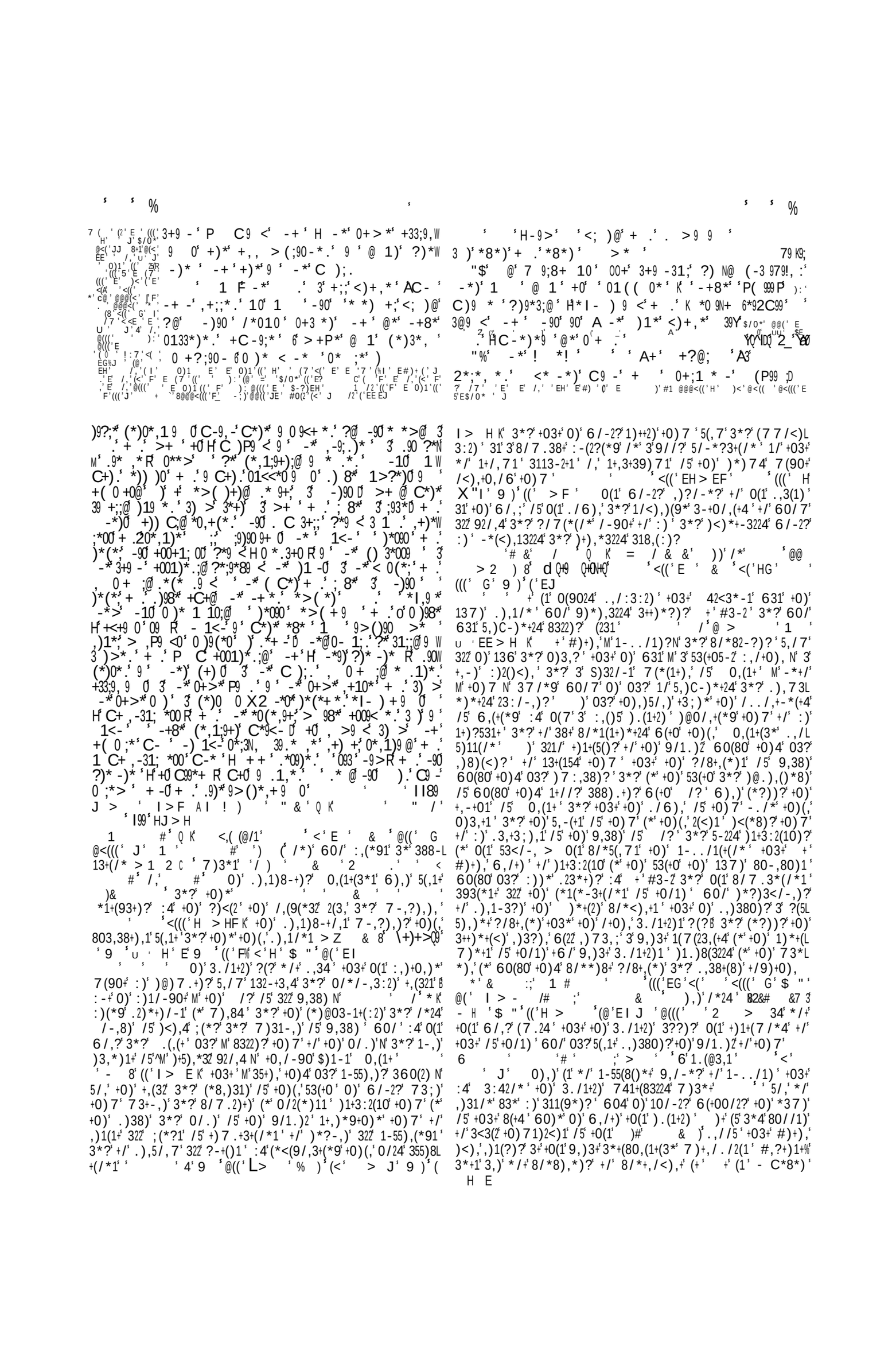


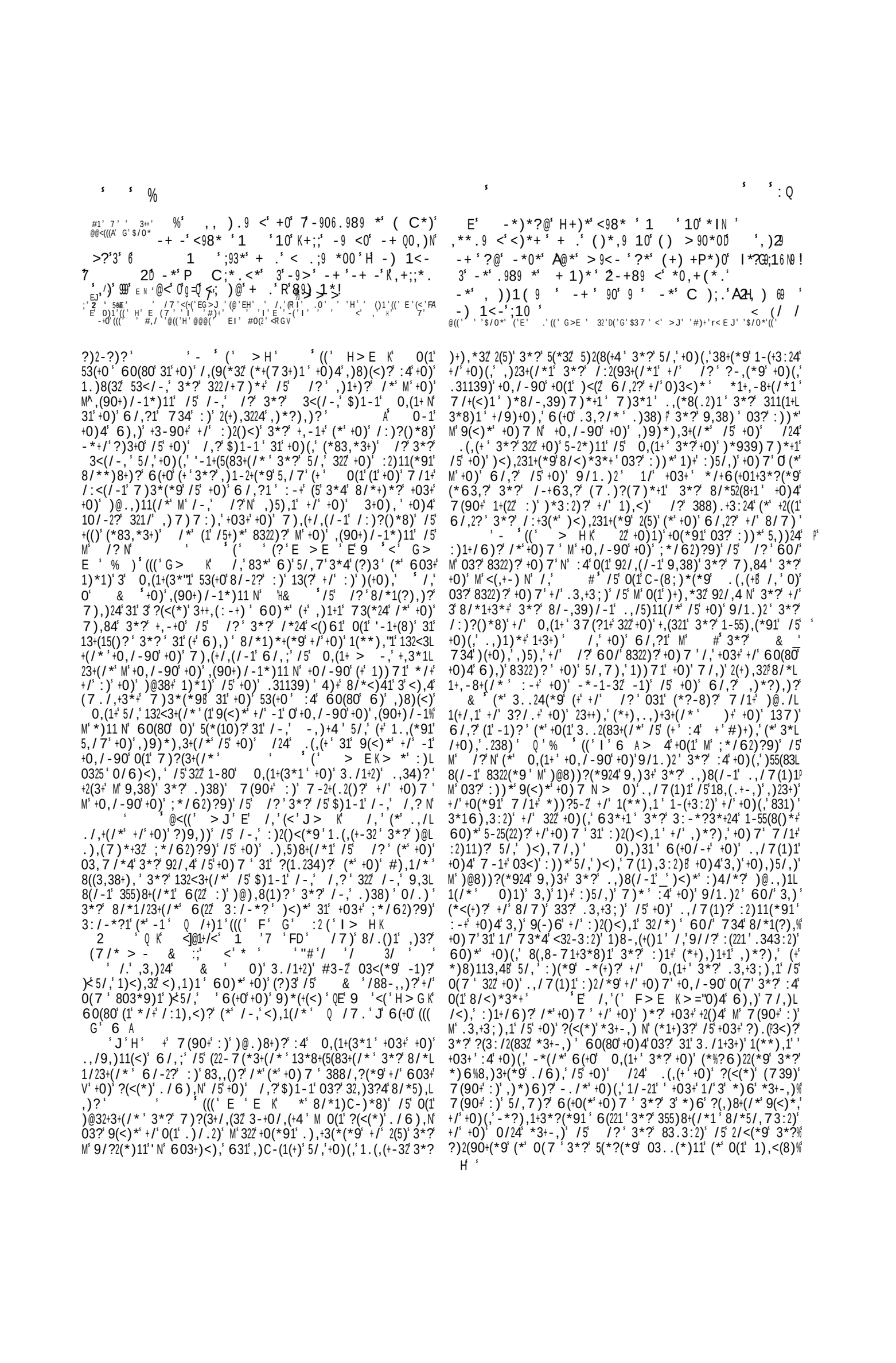


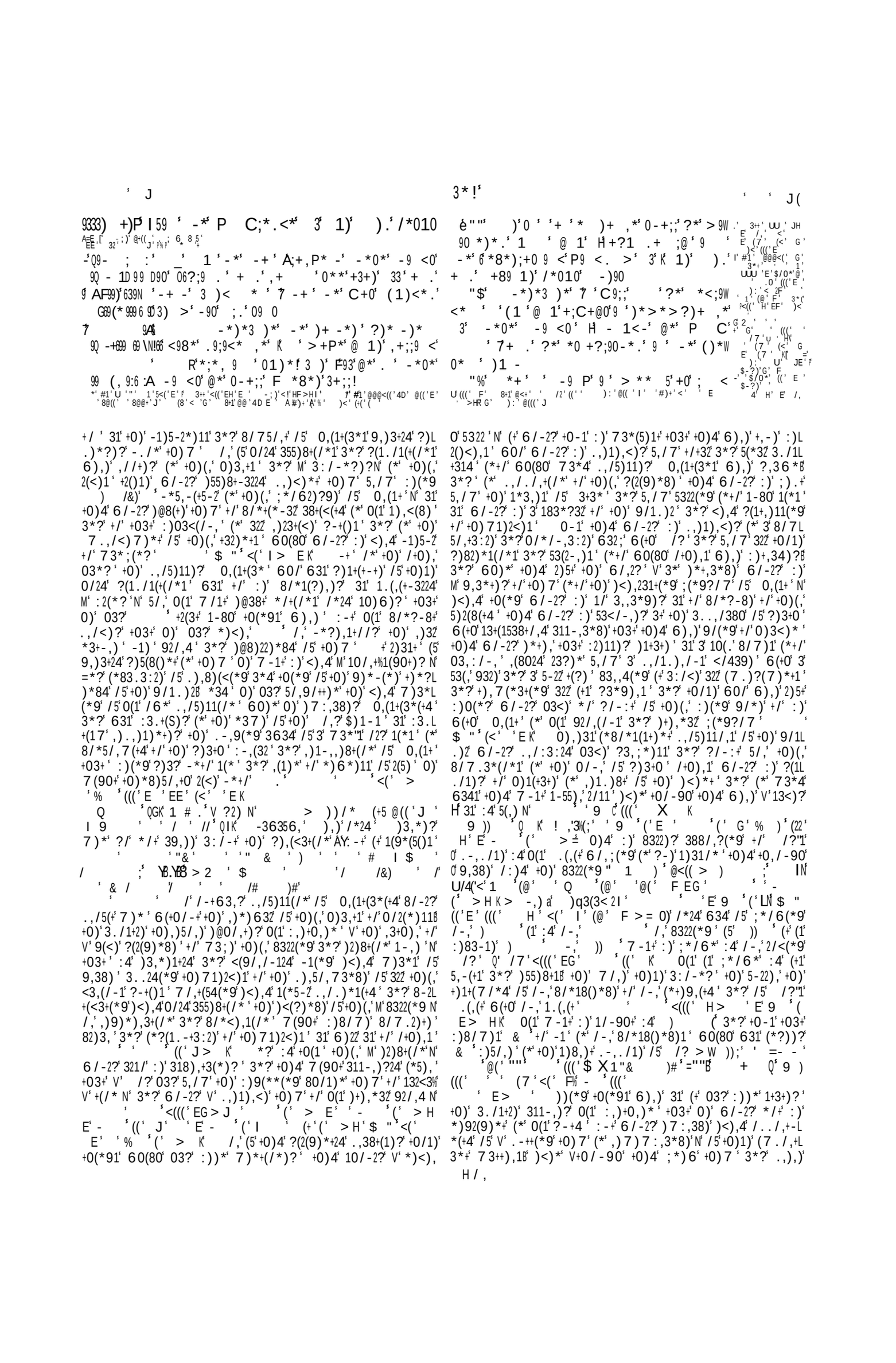


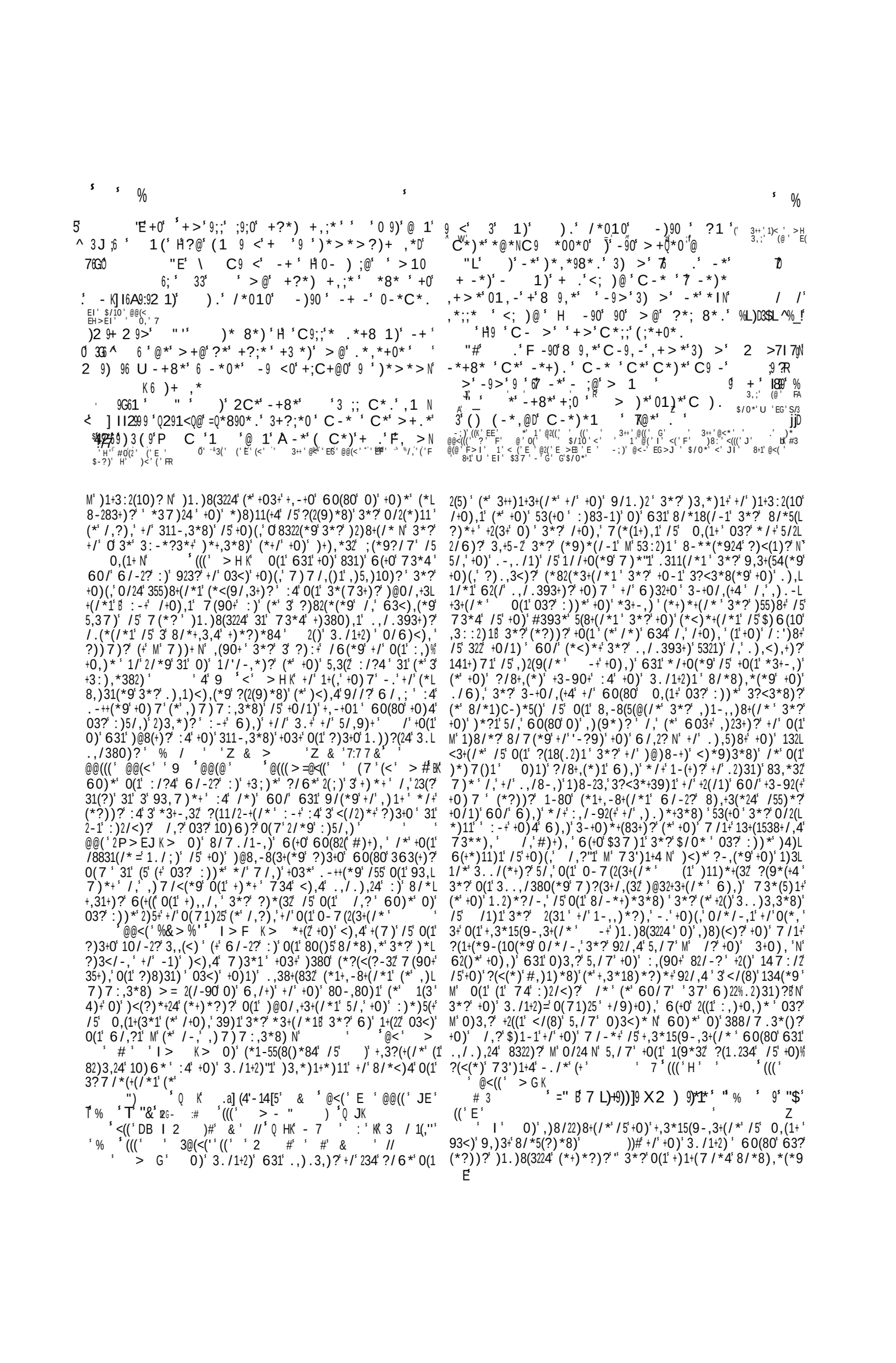


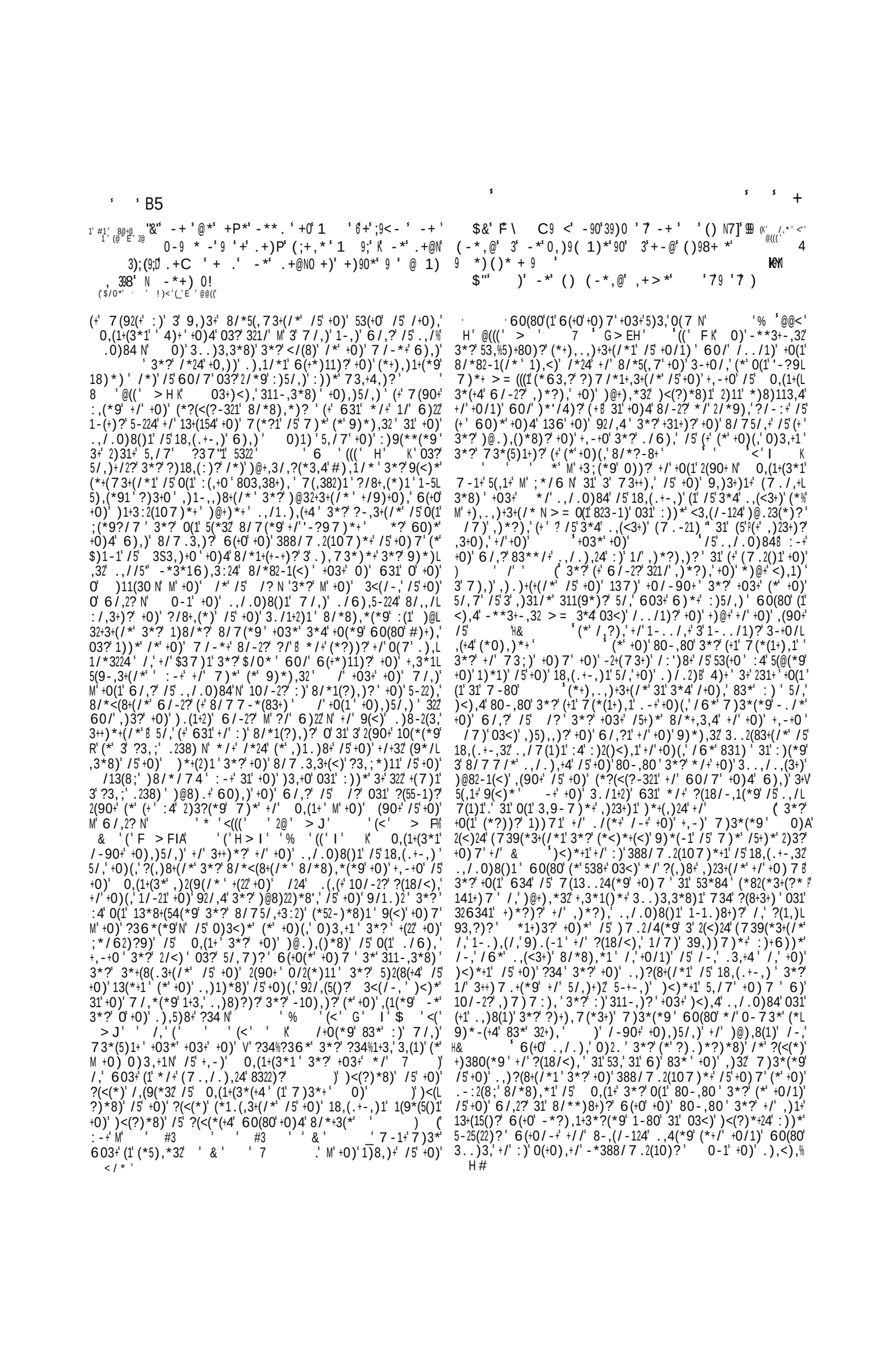


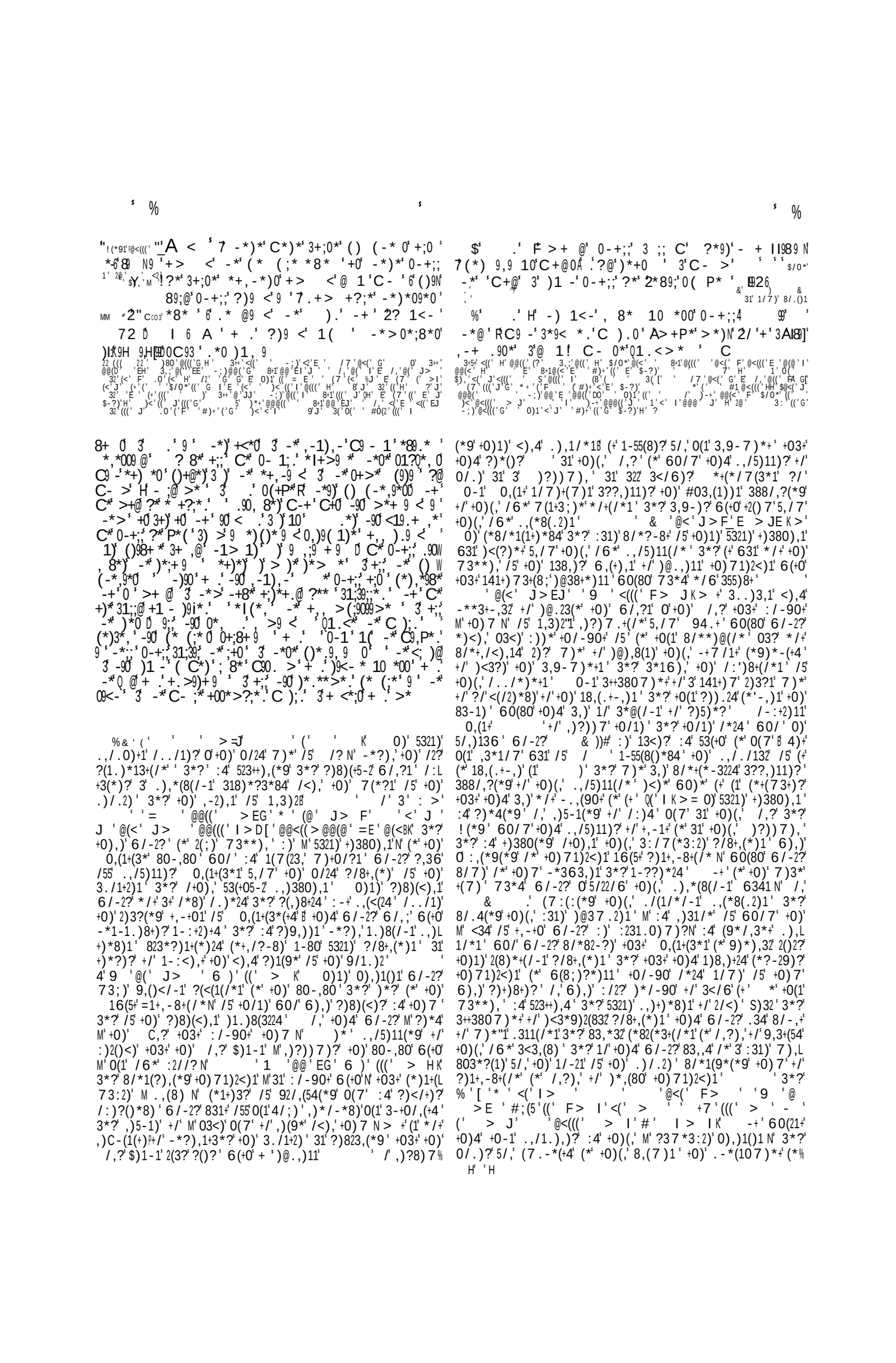


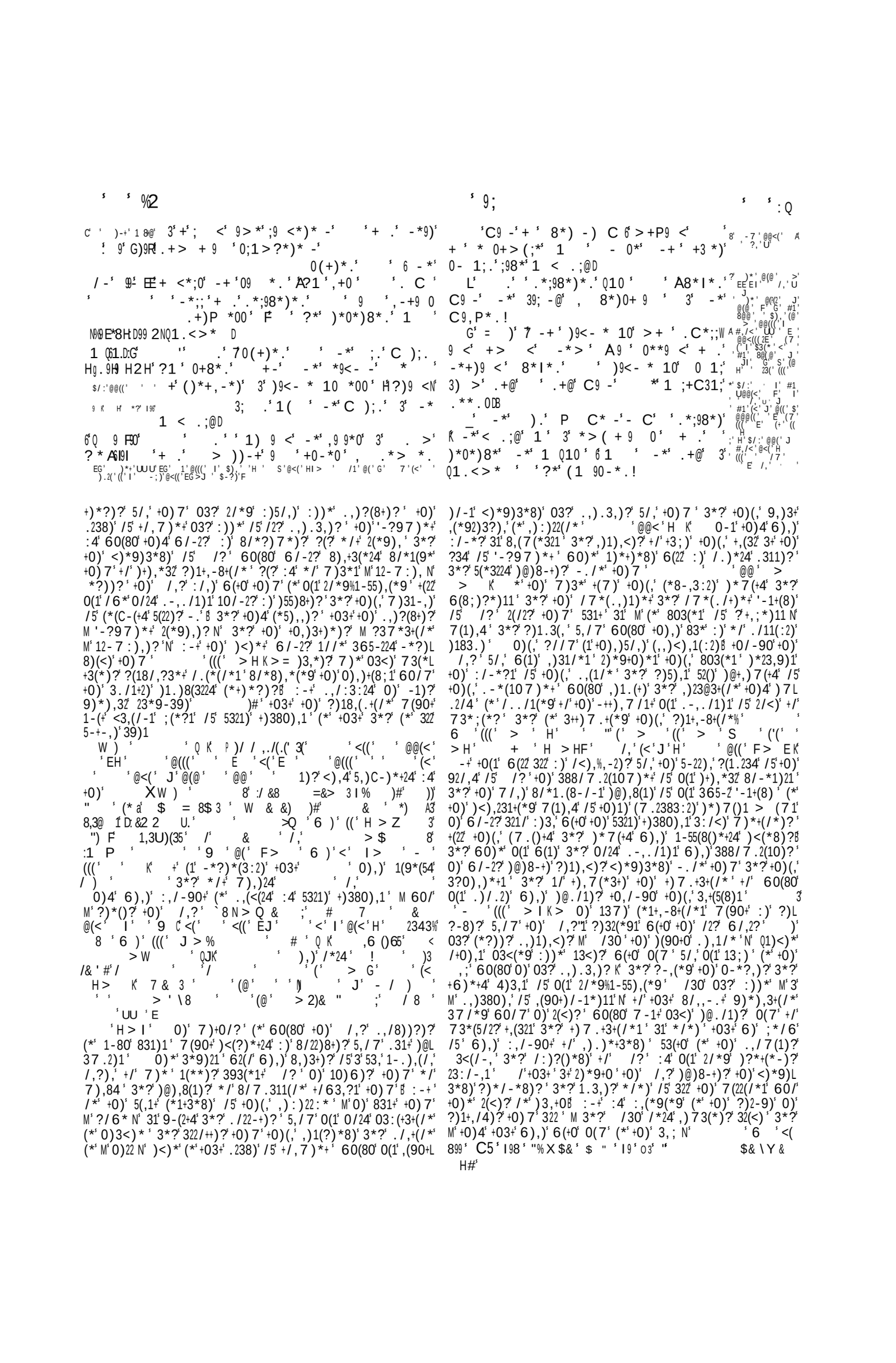


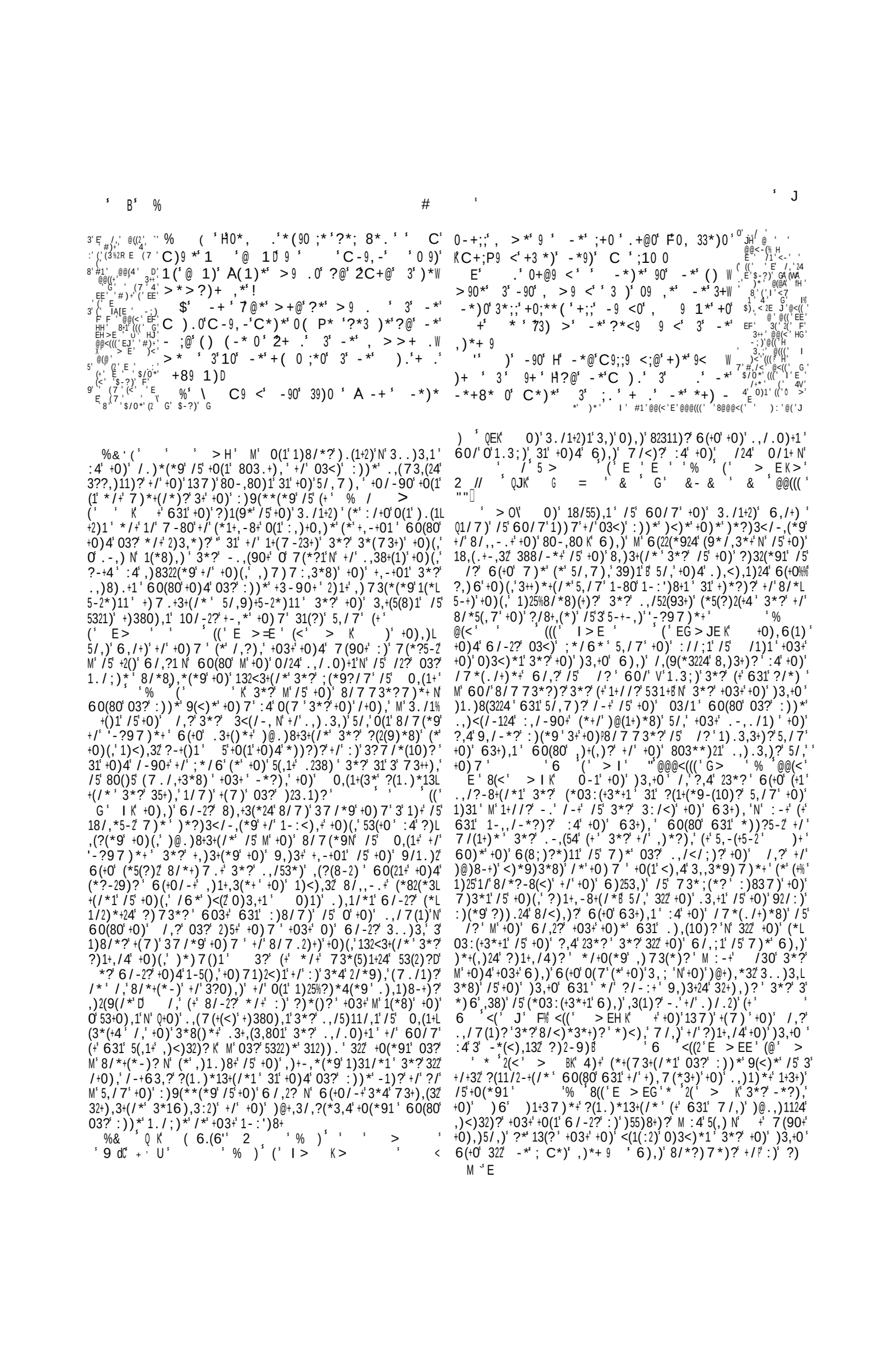


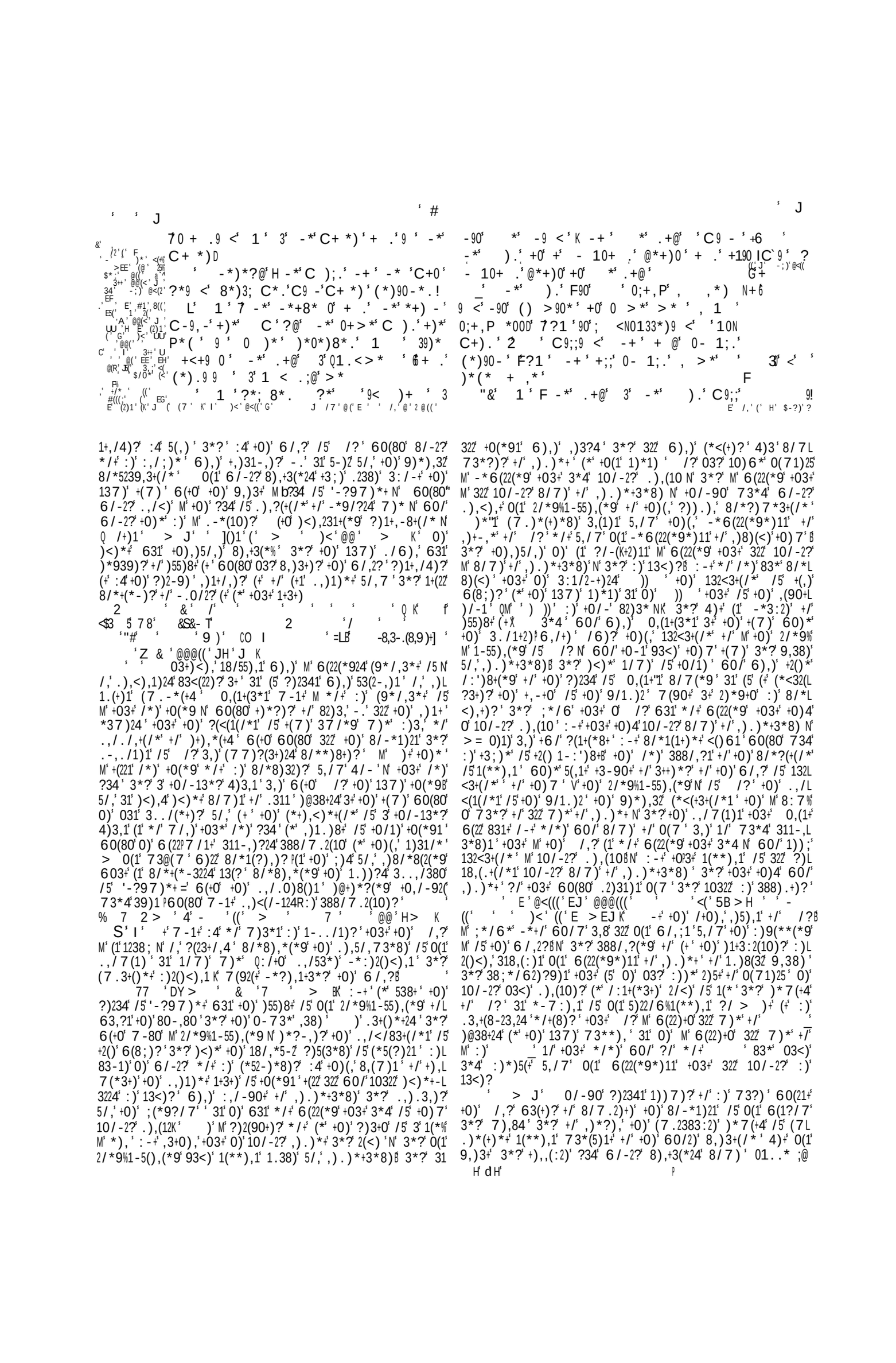


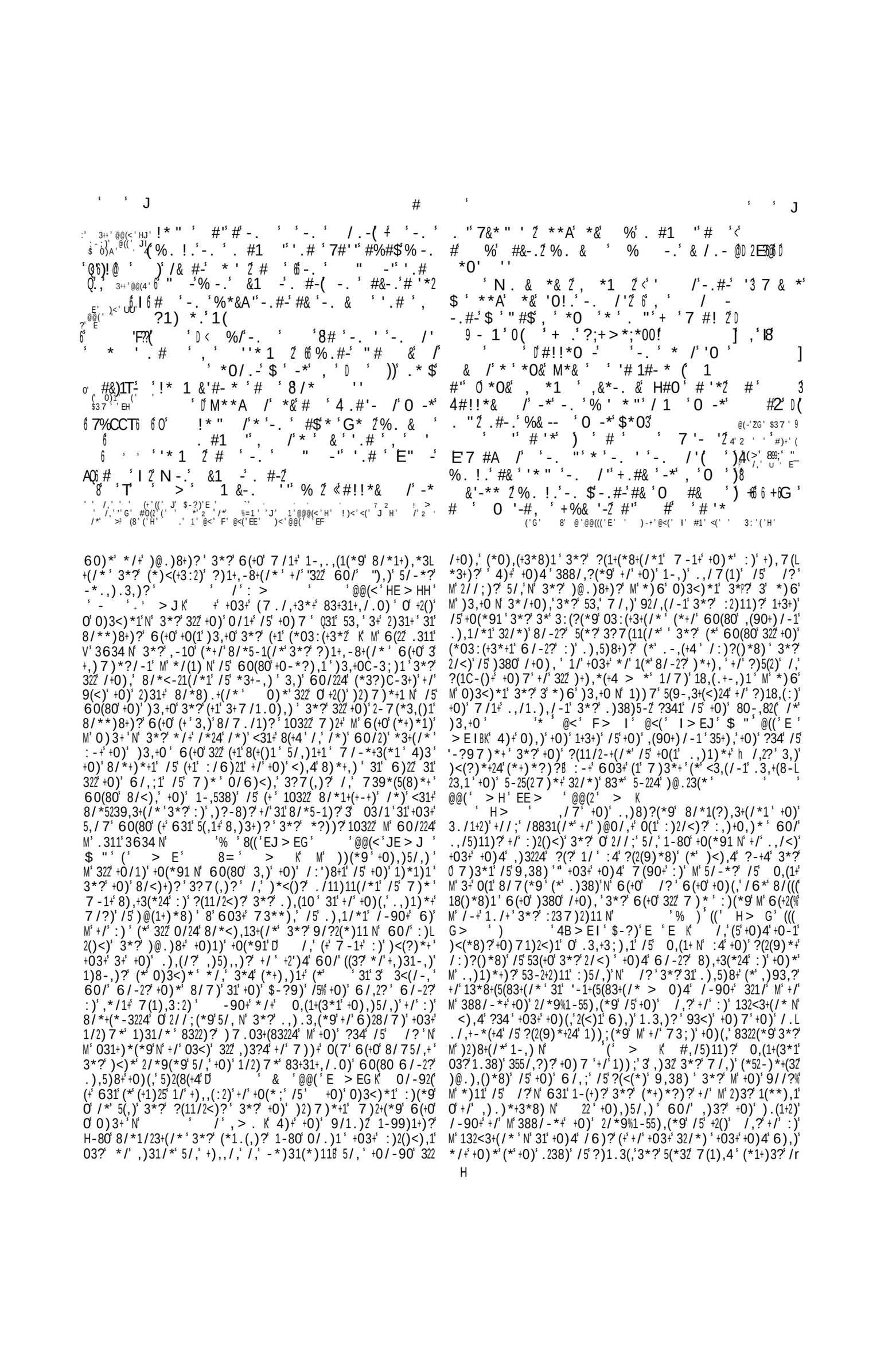


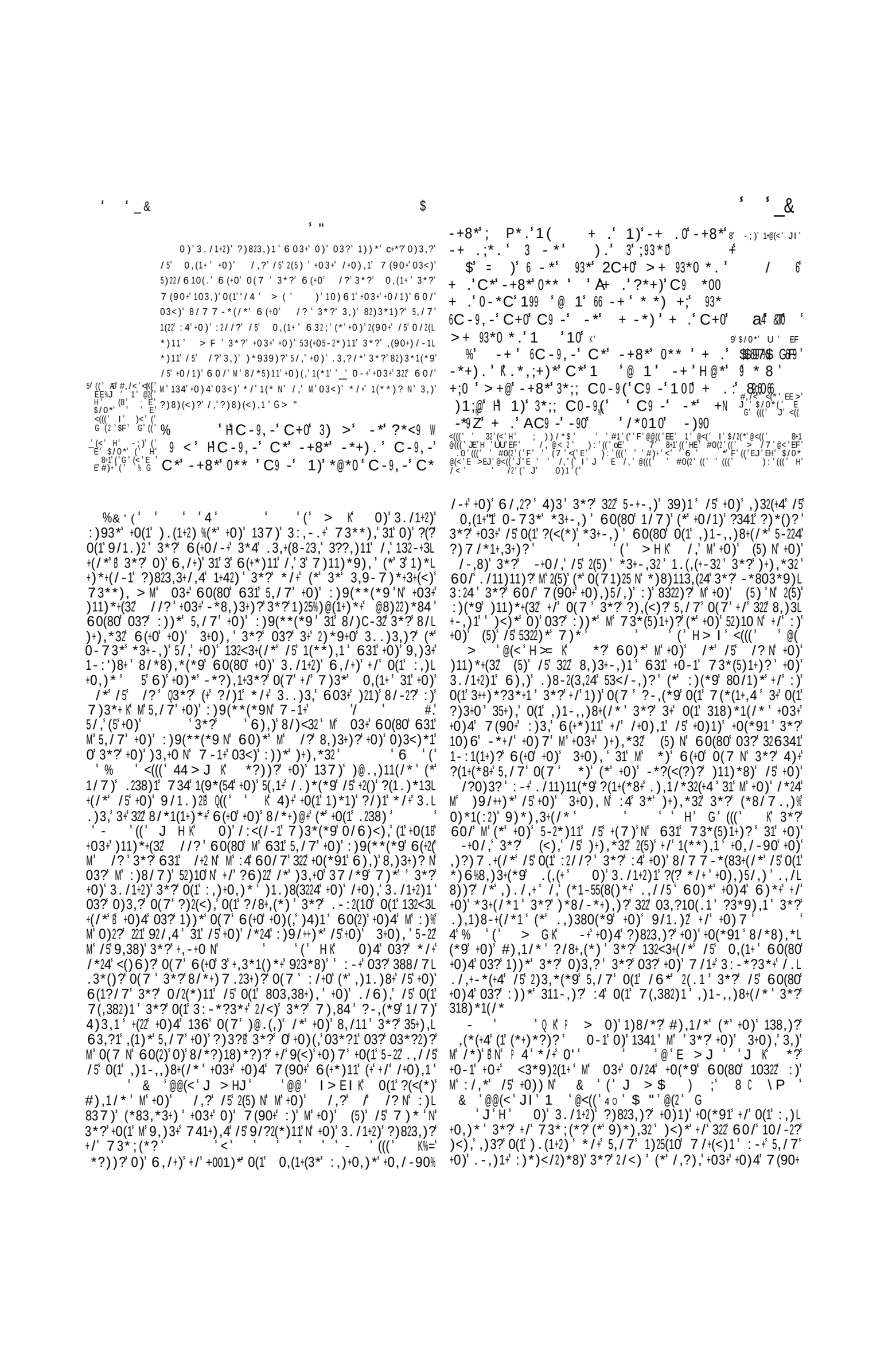


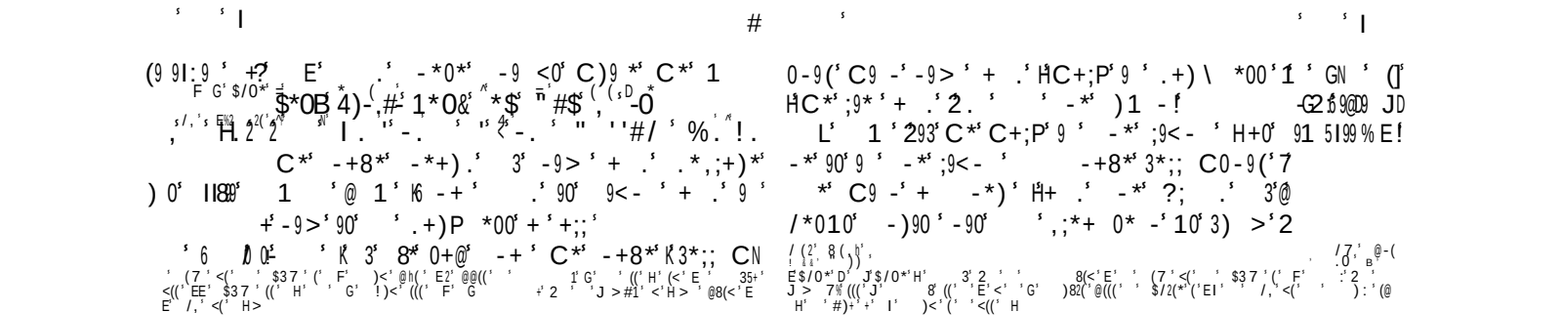


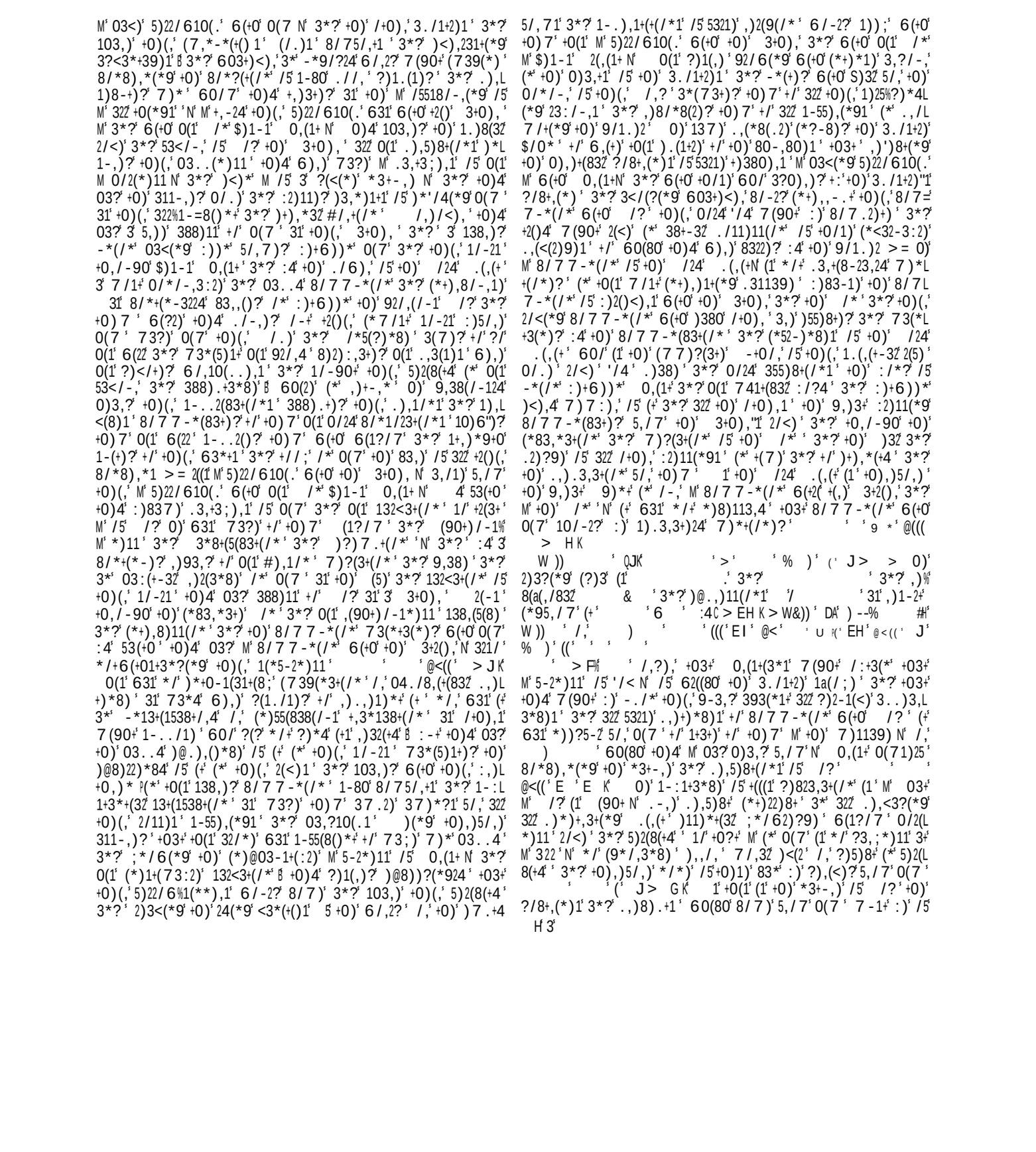


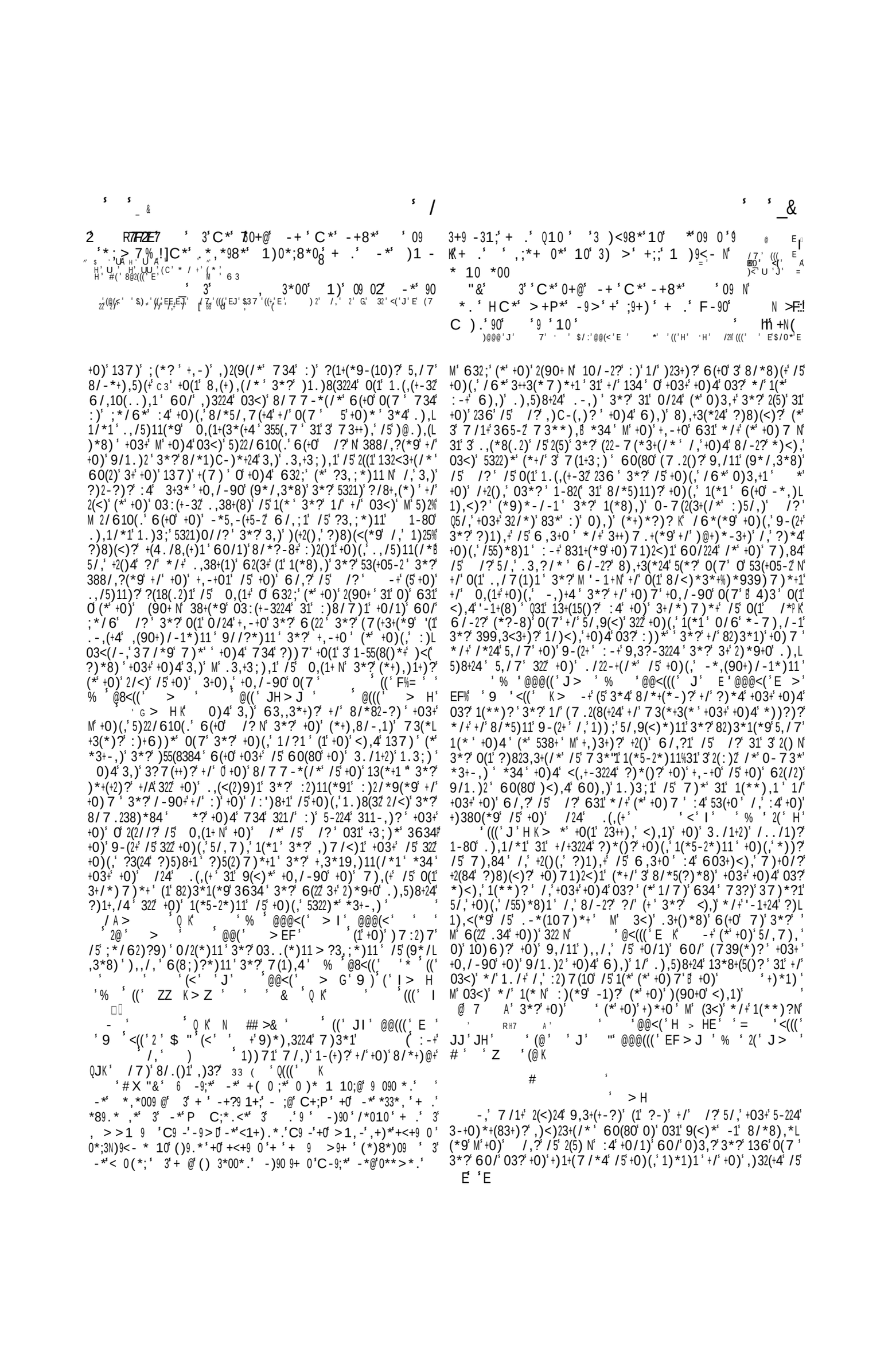


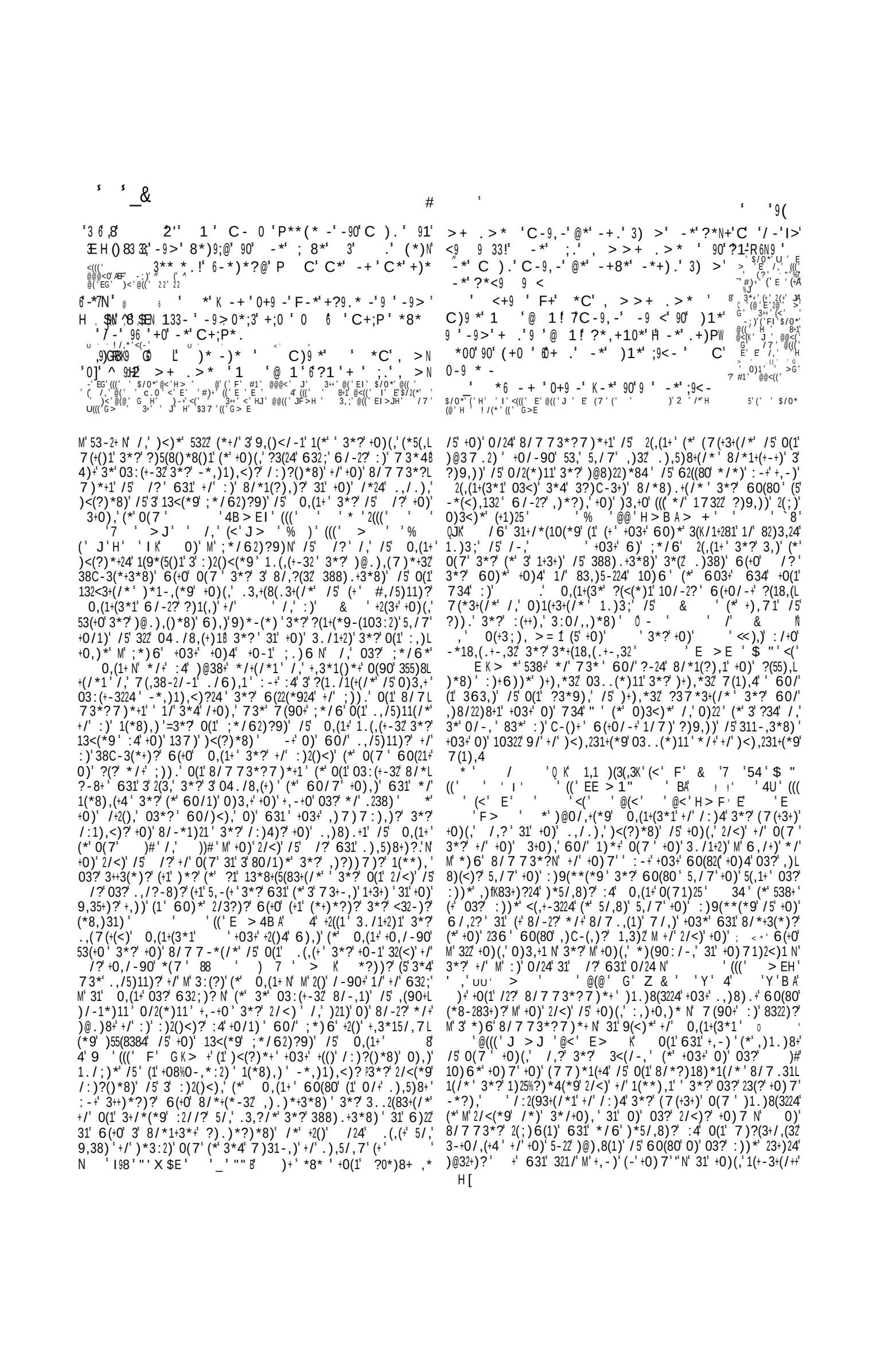


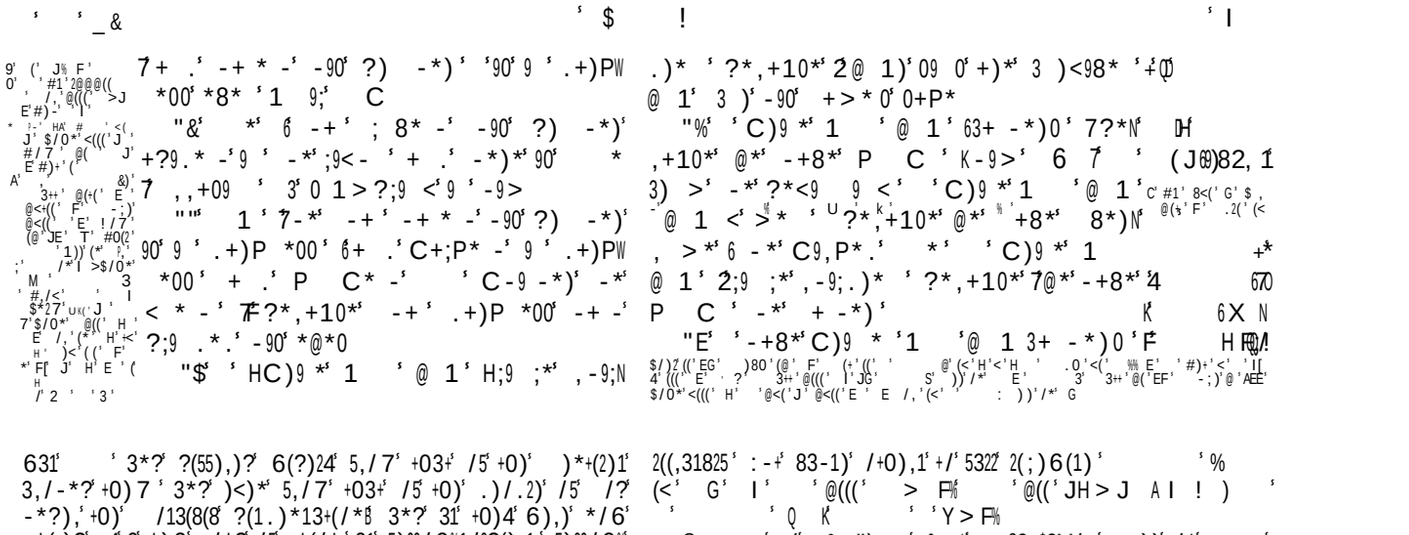


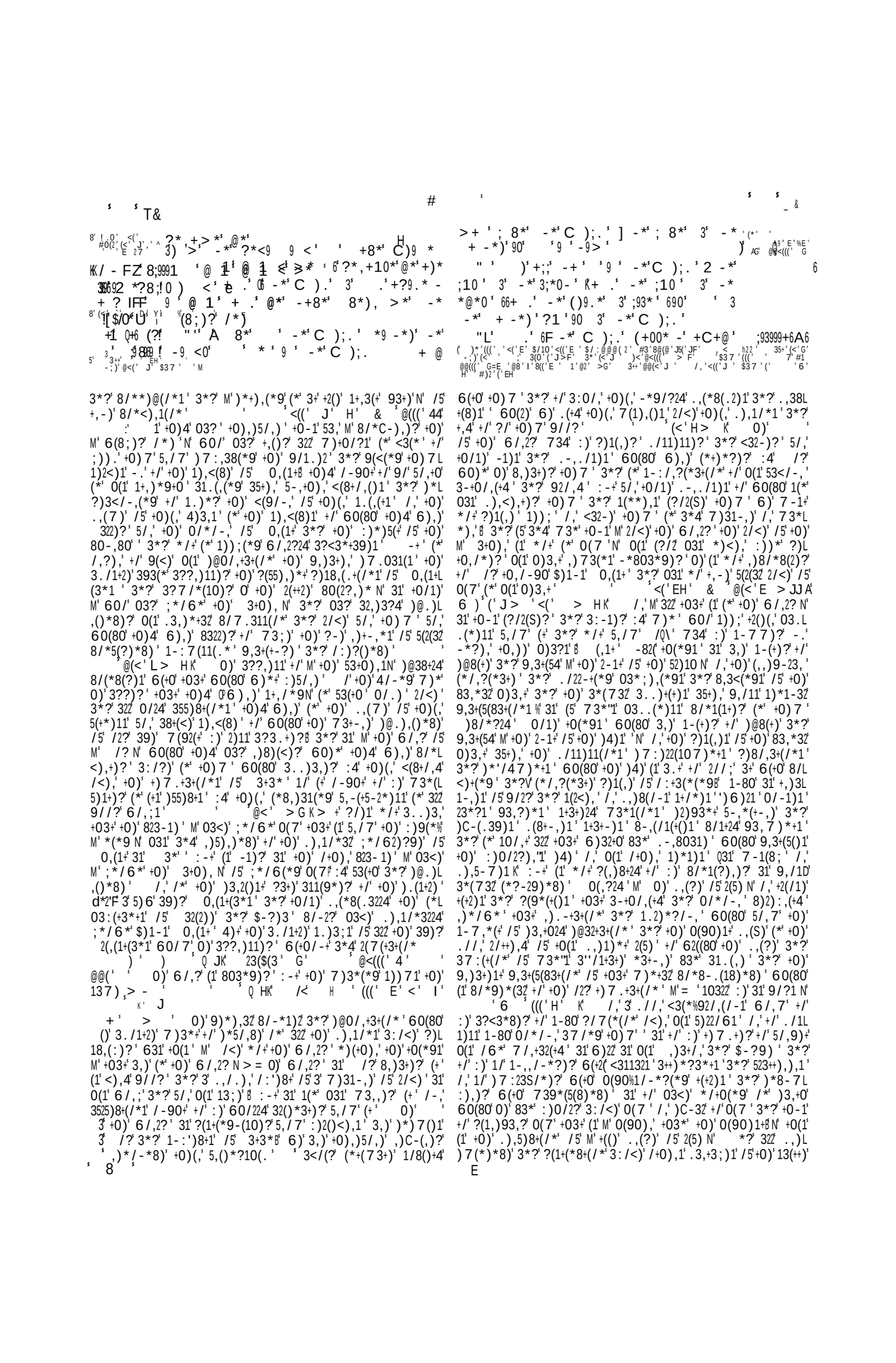


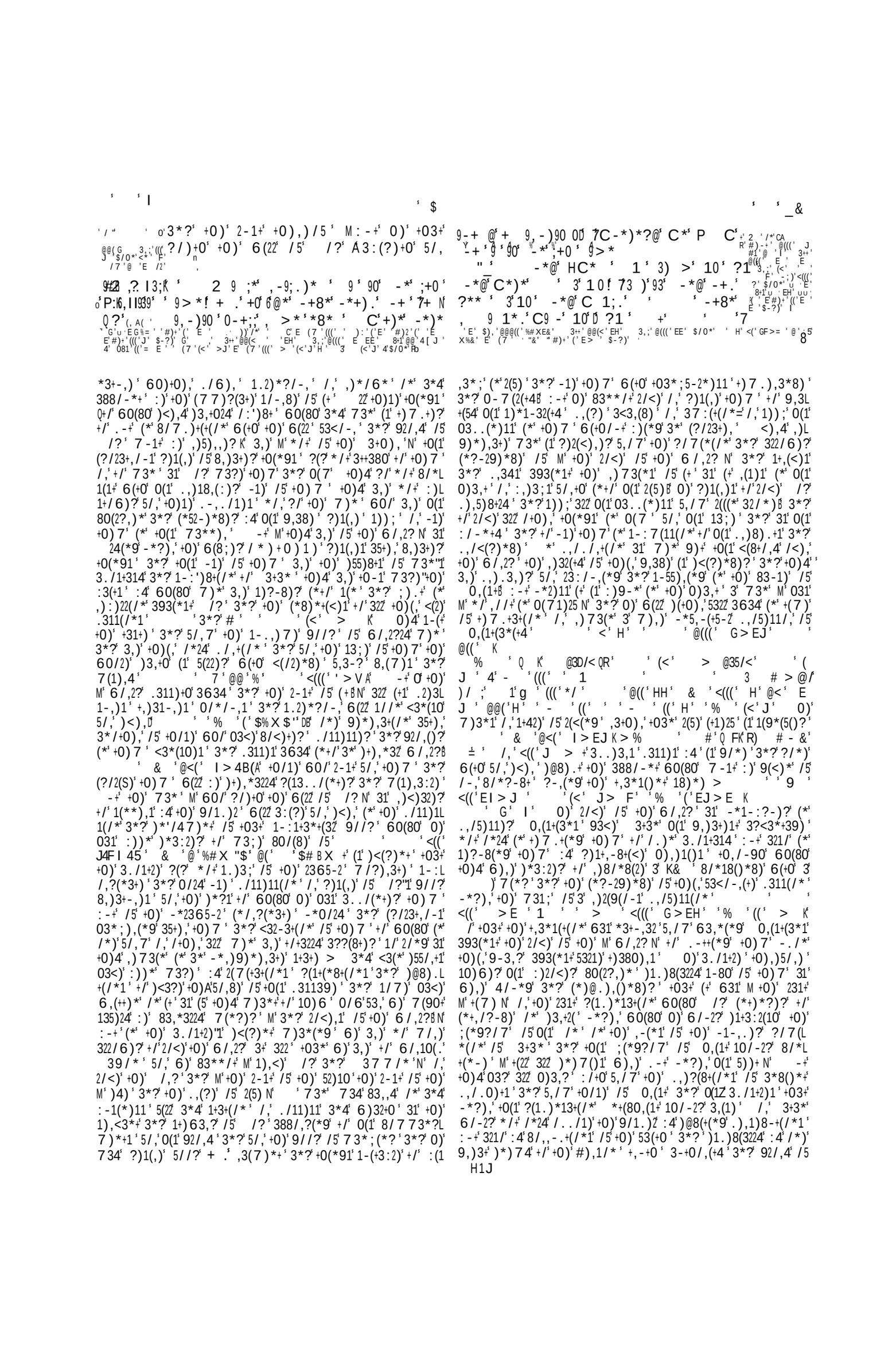


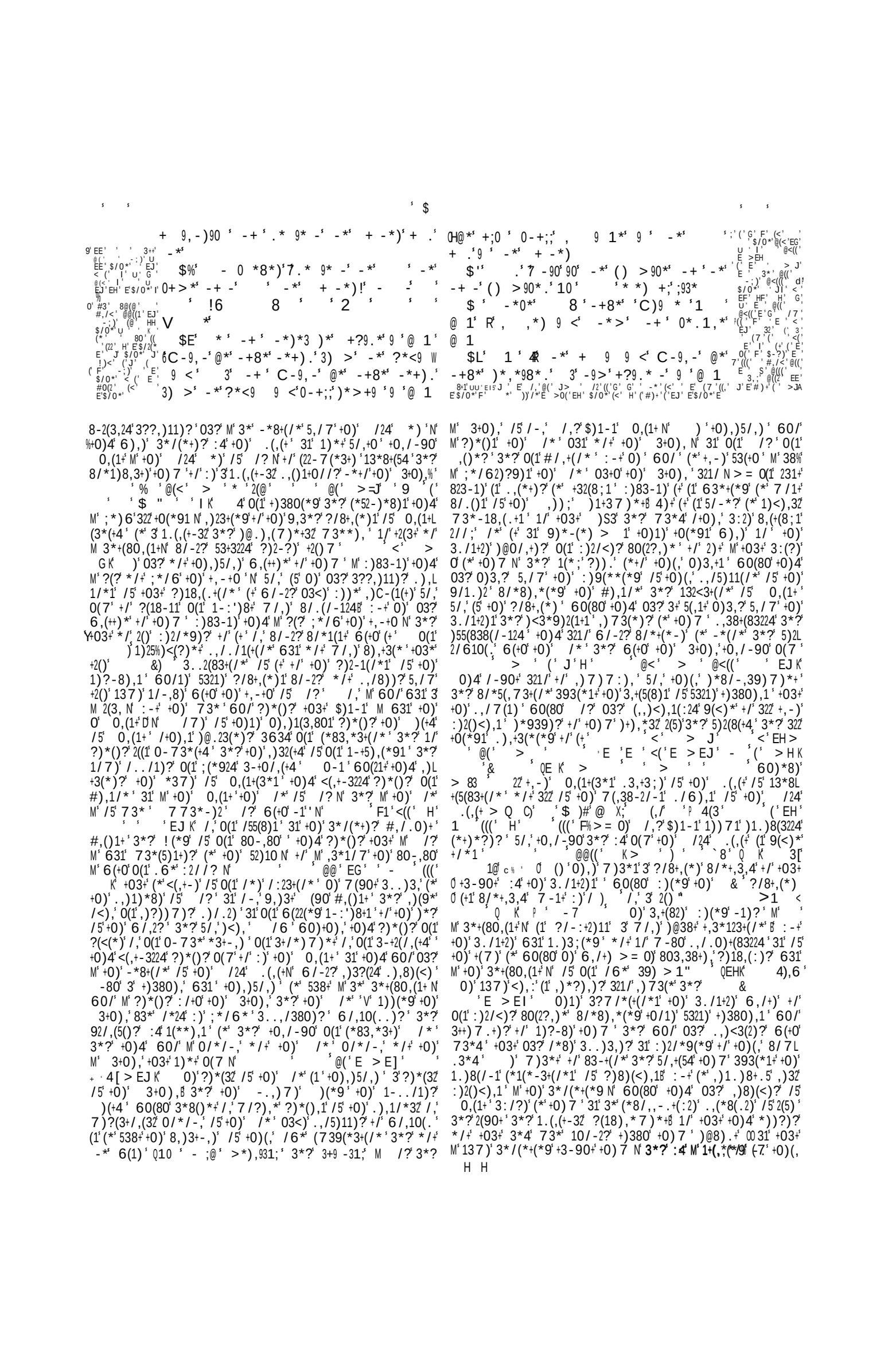












i9Q*) ^I9' A+ .' @*' **.' ' -+' + @' >+ ' *+, -' C*' >+@' K -+8*' , 39.* ,*' + .' ' '>' ' 98' QG'
:GD@ 1! ?1 '+0' -*' 0+>*'+ 9 9 <' *+*-N' ?*' +0-+>*.' ?*3)*' -9>' H+' -90' , >N
'2( )' ' '%* -' @ 1' 3' +;;' -9 <0' + .' 90')1 -' + . >< -' , 3(' (*% E' (<'
:' 9>6 ' 6F 1 ';9*'+ .'*8* '+0' 9'-+ -' +1<-'@ 1' $_' 3'@*' P C' -+'7-*' 90')9<- * 10' gY(03' /, ' (' F'
@*' 0-+;;' +?9.*' 9 ' 7-9> 2Q*' P C' 2 -+' *8*)@' *' -+' . * -' ∪ ' EJ' ' (2)1
, 9216) R2' $#' .' C' 6;9 ;*' , -9;.)* ' +?9.*6)9<- * 10 *00' F90' ? >' 3' -9> U ' (((' %S)80'
GV] -' 91' -9>D' -+ ' FC-* ' -*' 0-+;;' +((*+) E /, ' 'E '): ' ('G' I ' <(('E'E ' #)+' (((' G' 5' ,' +*/6 ' (@' I 8+1' 0(' 8+1 ∪ ' J ! (+' (('E= H' E' 0(' I ' (<' F' <' ' $/0*' (' J' (((' H, @@((' '
EG' ' #)+' ('F_' H')<' ('F '(((' E' 3, ;' <(((' JG' /2' ('H' ' (7 '<(' H' E' (7 '(<R G' (+' (('J'): ' (@' '#)+' ('J' EJ' ' E' #)+' ('H 4' (('F% ' $37 ' +' G'

M' .-,)' 7(*?1' (*' +0)' 634' /5',) 7) 7 :,3*8) 'N' /,' :4' 8/*5(,7L +/'+0)' /24' .(,(+' ' (((' ' ' % ' @@((' J ' J ' * +/'+0)' /24' .(,(+' ' (((' ' ' % ' @@((' J ' J ' *
(*9' +0) 7' (*' (+' /,')*3:2(*9' +0) 7' +/' ?(1+(*9-(10' (+' 5,/7' 322' <(((' G' (@' ' F% 00A' % $ "' ((' > JK> 0)' <(((' G' (@' ' F% 00A' % $ "' ((' > JK> 0)'
8/-*+),5)(+1' 5/,' :4' +0(1' +)380(*9' /5' /?' 0(71)25' +0)4' C-3;),1' 3*?' 1/7)' /+0),1' 03<)' (*5),,)?' 5,/7' +0)' 23*%[' C-3;),1' 3*?' 1/7)' /+0),1' 03<)' (*5),,)?' 5,/7' +0)' 23*%[' 6),)' *1+,-8+)?' (*' 322' +(2(*91')11)*+(32' +/' 132<3+(/*' 3*?' 9-39)' /5' +0)' +6)*+4%1)<)*+0' <),1)' +03+' 3' 1+3+)?' 7(*(1+,4' 8/-2?' */+' :)' 53+3224' ?)2-?)?' ' * ' *! ' > H ' ' (1' */+' *)8)113,4' (*' +0)' 80-,80' 31' +,-)' :)2()<),1' :)(*9' @@@(' J > JH' ' <(' H > H ' ' - ' ' V > E' M' 3*?' */2() 'N' +0)4' 8/-2?' */+' +0),)5/,)' 803*9)' +0)' ?/8L (((' G' IK' /6' +0(1' +)380(*9' 631' 32+/9)+0),' M' +,-+0' +,(*)' 60(80' +0)4' 03?' +0-1',)8)(<)?' 5,/7' 3./1+2)1' 3*?' M' 3*?' */2() 'N' +0)4' 8/-2?' */+' +0),)5/,)' 803*9)' +0)' ?/8L)<3*9)2(1+1' -*?),' +0)' +)380(*9' /5' +0)' 0/24' .(,(+' 5/,' 3*4' ?(+' 734' :)' /5' 7/7)*+' +/' /:1),<)' +03+' +(()' 0,(1+(3*' *)6' ?/8+,(*)' 6(+0/-+' ?)<(3+(*9' 5,/7' +0)' +,-+0' (*+/' 5321)L Ó 7(*(1+,4' 631' (*' +0)' 0(90)1+' ,).-+)' (*' +0)' 80-,80' 60)*' 0//?' 0(1' +0)' ?)8)(<),1' 3(7)?' 3+B 60),)31' +0)' 3./1+2)' Ó +0)' 9(5+1' /5' +0)' .(,(+' 6),)' ./-,)?' ?/6*' -./*' (+' (*' +0)' /*24' 1/-90+' +/')1+3:2(10' +0)7' (*' +0)' +,-+0' 60(80' 03?' :))*' ?9,)3+)1+' 3:-*?3*8)" Z > 0)' .3.(1+1' /*' +0)' M' .,)380)?' +/' +0)7' 6(+0' +0)' /24' 0/1+' 1)*+' ?/6*' 5,/7' /+0),' 03*?' 3?0),(*9' +/' +0)' /-+63,?' 5/,7' 3*?' +0)' &' V' 0)3<)*' 'N' 3*?' (*?))?' +2(/1)' 60/' 03?' +0-1':))*' +3-90+' & Q(*' 60(80' +0)4' 03<)' +//' 73*4' 5/22/6),1' 37/*9' 6/-2?' M' 3:(?)' (*' _/,' (*' .' (*' 0,(1+' /,' (*' +0)' +,-+0' */7(*32' .,/+)1+3*+1 K' 9,/-*?' +0)(,' ' /,' ' ' /(5 -./*' (+' 60(80' (1' 3..2()?' (*' 1)<),32' 6341B' :-+' (1' /*24' *)7(*32' .,/+)1+3*+1 K' 9,/-*?' +0)(,' ' /,' ' ' /(5 -./*' (+' 60(80' (1' 3..2()?' (*' 1)<),32' 6341B' :-+' (1' /*24' 3*' 103?/6' /5' +0)' +,-)' 0' -*8+(/*' 5,/7' +0)' 0/24' 3*' 103?/6' /5' +0)' +,-)' 0' -*8+(/*' 5,/7' +0)' 0/24' M' *)' 'N' 4)+' 3231' (+' (1' +/' /.23(*' +03+' *-7:),1' 1)(S(*9' /*' M' *)' 'N' 4)+' 3231' (+' (1' +/' /.23(*' +03+' *-7:),1' 1)(S(*9' /*' +0(1' 103?/6' 8/7)' 10/,+' /5' +0)' 1-:1+3*8) +0(1' 103?/6' 8/7)' 10/,+' /5' +0)' 1-:1+3*8) Q ' QEIK' -# ' (((' I ' (<' F% %P% W% ' (Q ' QEIK' -# ' (((' I ' (<' F% %P% W% ' (J' (((' J > G' *' 322' +0)' .31139)1' (*' +0(1').(1+2)' 3*?' (*' J' (((' J > G' *' 322' +0)' .31139)1' (*' +0(1').(1+2)' 3*?' (*' 1)<),32' /5' +0)' /+0),1' +0)' .311(<)' .),5)8+' (1' -1)?' 560(80' (1' 1)<),32' /5' +0)' /+0),1' +0)' .311(<)' .),5)8+' (1' -1)?' 560(80' (1' .,/.),24' M' 031' :))*' :/,* N' /,' " > *?' */' 322-L .,/.),24' M' 031' :))*' :/,* N' /,' " > *?' */' 322-L 1(/*' (1' 3+' 322' 73?)' +/' " ' (*' +0)' 60/2)').(1+2) %V' 1(/*' (1' 3+' 322' 73?)' +/' " ' (*' +0)' 60/2)').(1+2) %V' 1 ' QE K' > & ' ' E 1 ' QE K' > & ' ' E

'

' X

0)' 9/1.)2' 60)*' 6)22' -*?),1+//?' 3*?' ?-24' ,)8)(<)?' 0)' 9/1.)2' 60)*' 6)22' -*?),1+//?' 3*?' ?-24' ,)8)(<)?' 1)+1' +0)' 0)3,+' 393(*1+' 322' 1(*' 3*?')55)8+-3224' .,)<)*+1' +0)' 1)+1' +0)' 0)3,+' 393(*1+' 322' 1(*' 3*?')55)8+-3224' .,)<)*+1' +0)' 322/6)?' .,38+(8)' /5' (+' 3+' +0)' 137)' +(7)' +03+' (+' 9(<)1' +0)' 322/6)?' .,38+(8)' /5' (+' 3+' +0)' 137)' +(7)' +03+' (+' 9(<)1' +0)' 7/1+' :2)11)?' ,)2()5' +/' +0)' 6/-*?)?' 8/*18()*8)1' /5' +0/1)' 7/1+' :2)11)?' ,)2()5' +/' +0)' 6/-*?)?' 8/*18()*8)1' /5' +0/1)' 60/' 03<)' 1(**)?' :4' +0)' 0/.)' /5' .3,?/*' +0,/-90' /-' 60/' 03<)' 1(**)?' :4' +0)' 0/.)' /5' .3,?/*' +0,/-90' /-' M' ?</83+)' 6(+0' +0)' 3+0),' $)1-1' 0,(1+' +0)' ,(90+)/-1 N' M' ?</83+)' 6(+0' +0)' 3+0),' $)1-1' 0,(1+' +0)' ,(90+)/-1 N' 3*?' 0(1' 322%1-55(8()*+' .,/.(+(3+(/*' 0-1' +0)' ?(<(*)' /,(9(*32' 3*?' 0(1' 322%1-55(8()*+' .,/.(+(3+(/*' 0-1' +0)' ?(<(*)' /,(9(*32' /5' +0)' 18,(.+-,)1' (1')<(*8)?' :4' +0)' 8/7.2)+)' 1-(+3:2)*)11' /5' +0)' 18,(.+-,)1' (1')<(*8)?' :4' +0)' 8/7.2)+)' 1-(+3:2)*)11' /5' +0)' ,)7)?4' .,/.1)?' (*' +0)7' +/' +0)' 38+-32' 1+3+)' /5' 7)*' (*' +0(1')<(2' 6/,2?' 60(2)' 322' /+0),' 180)7)1' 3,)' 5/-*?)?' /*' 5321)' .,(*8(.2)1' 3*?' +0),)5/,)' 3,)' +/+3224' (*L 3..2(83:2)' +/' +0)' 831)' 3*?' 83**/+')55)8+-3224' .,(*9'.)38)' +/' +0)' 8/*18()*8)' 3*?' 2)3?+0)' 0)3,+' +/' 3:0/,' 322' (*(C-(+4' 8/-1*)11' 31' 603+' +0)4' 2/<)?' 3*?' ?)2(90+)?' (*' M' 6),)' M' :/,*' /5' 0(7 N' :4' +0)' ,)9)*),3+(/*' /5' 0(1' .(,(+' 3*?' 6),)' +0)' 80(2?,)*' /5' /?' 3*?' +0)' 0)(,1' /5' 0)3<)*' /' +03+' M' 3:(?(*9' (*' 0,(1+' 3*?' :,(*9(*9' 5/,+0' 7-80' 5,-(+N' :4' 6/,;(*9',(90+)/-1*)11' 631' +0)' ./.),' 7)+0/?' /5' .,)L .3,(*9'+/' 7))+' 0(7' (*' '-?97)*+' 6(+0' 8/*5(?)*8)' 3*?' '/4' (((' G > EH K > =V50)')@.,)11(/*' M' :/,*' /5' 0(7 N' 60(80' (1' 0),)' 7/1+' /:<(/-124' (*+),.,)+)?' /5' 0,(1+' 8/*L 8),*(*9' 60/7' +0)' 3./1+2)' 631' 1.)3;(*9' 3*?' +0-1' :)8/7L (*9' 0' +0)' 1/*1' /5' /?N' Q(((' K' 82)3,24' 10)61' 603+' $/0*' :)2()<)?' 8/*8),*(*9' 0(1' /,?B 3*?' 321/' (03+' +0)' 137)' (*?(<(?-32' 38+' (1' 318,(:)?' +/' /?' Q<' K' +/' 0,(1+' QEIK' 3*? +/'+0)' /24' .(,(+' (((' % @@((' J ' J ' * <(((' G' (@' F% 00A' % $ "' ((' > JK> 0)' C-3;),1' 3*?' 1/7)' /+0),1' 03<)' (*5),,)?' 5,/7' +0)' 23*%[' 9-39)' /5' +0)' +6)*+4%1)<)*+0' <),1)' +03+' 3' 1+3+)?' 7(*(1+,4' (1' */+' *)8)113,4' (*' +0)' 80-,80' 31' +,-)' :)2()<),1' :)(*9' M' 3*/(*+)?' :4' +0)' .(,(+N' *))?' */+' 1-80' +)380(*9' B O' :-+' ?(+' 734' :)' /5' 7/7)*+' +/' /:1),<)' +03+' +(()' 0,(1+(3*' Ó 7(*(1+,4' 631' (*' +0)' 0(90)1+' ,).-+)' (*' +0)' 80-,80' 60)*' Ó +0)' 9(5+1' /5' +0)' .(,(+' 6),)' ./-,)?' ?/6*' -./*' (+' (*' +0)' ?9,)3+)1+' 3:-*?3*8)" Z > 0)' .3.(1+1' /*' +0)' /+0),' 03*?' 3?0),(*9' +/' +0)' /-+63,?' 5/,7' 3*?' +0)' & & Q(*' 60(80' +0)4' 03<)' +//' 73*4' 5/22/6),1' 37/*9' */7(*32' .,/+)1+3*+1 K' 9,/-*?' +0)(,' ' /,' ' ' /(5 -./*' (+' 60(80' (1' 3..2()?' (*' 1)<),32' 6341B' :-+' (1' /*24' 3*' 103?/6' /5' +0)' +,-)' 0' -*8+(/*' 5,/7' +0)' 0/24' M' *)' 'N' 4)+' 3231' (+' (1' +/' /.23(*' +03+' *-7:),1' 1)(S(*9' /*' +0(1' 103?/6' 8/7)' 10/,+' /5' +0)' 1-:1+3*8) Q ' QEIK' -# ' (((' I ' (<' F% %P% W% ' (J' (((' J > G' *' 322' +0)' .31139)1' (*' +0(1').(1+2)' 3*?' (*' 1)<),32' /5' +0)' /+0),1' +0)' .311(<)' .),5)8+' (1' -1)?' 560(80' (1' .,/.),24' M' 031' :))*' :/,* N' /,' " > *?' */' 322-L 1(/*' (1' 3+' 322' 73?)' +/' " ' (*' +0)' 60/2)').(1+2) %V' 1 ' QE K' > & ' ' E

H I H

#, 3

0) 3 . / 1+2) : ,) 3 ; 1 / - + (* 3 ? 7 (, 3+(/ * / 5 +0) '2/<) / 5
/ ? ' (* 7 3 ; (* 9 - 1 0(1 80(2?,) * ' 3 * ?' 9(<(* 9 - 1 . ,) 1) * +
. ,(<(2) 9) 1 6 (+0 +0) 0 / .) / 5 3 * ' (* 8 / * 8) (< 3 : 2) 5) 2(8(+4 '
3 * ?' 10) 6 1 +0 3 + 322 6 0 / 03<) +0(1 0 / .) M . - ,(54 +0) 7 %
M 1) 2<) 1 31 0) (1 . - ,) N > J) 10) 6 1 0 / 6 +0)
80(2?,) * / 5 / ? 3 * ?' +0) 80(2?,) * / 5 +0) ?) <(2 7 34 :)
?(1+(* 9 - (10) ? H >) @ 0 / , +1 0(1 ,) 3?) , 1 + / O 2/<)
M / *) 3 * / +0) , N 8 / * +, 31+(* 9 +0(1 2/<) 6 (+0 +0)) @ L

3 7 . 2) / 5 3(* (3 * ?' 6 3 , * (* 9 +0) 7 + / ') @ .) 8 + +0) 0 3 +,) ?'
/ 5 +0) 6 / , 2? ' > J) . / (* +1 / - + M +0) 2/<) / 5
V +0) : ,) +0 ,) * N 31 +0) ?(1+(* 9 - (10(* 9) <(?) * 8) / 5
8 / * <) , 1(/ *) @ . 23(* 1 +0) * 3 + - ,) 3 * ?') 55) 8 + 1 / 5 (+ 8 / * L
+, 31+(* 9 (+ 6 (+0) * 7 (+4 3 * ?' 1) 25(10 *) 11 3 * ?') * 5 / , 8) 1
+0) . , 38+(8) / 5 (+ : 4 + 0)) @ 3 7 . 2) / 5 0 , (1+ H > F %
) @ 0 / , +1 0(1 ,) 3?) , 1 + / 2/<) M (* ' ?)) ?' 3 * ?' (* ' + , - +0 'N
3 * ?' 10) 6 1 +0 3 + 8 / * 5(?) * 8) (* / ?' (1 8 / * *) 8 +) ?' 6 (+0
+0) 8 / * 18(/ - 1 *) 11 / 5 - . , (90 + / :) ? ( ) * 8) ' G > EH

1(*1 (*+/ 3*) * 8/ - ,39) 7) * + / ?(1/ :) ?() * 8) 5 o ,) ,) : 4
M 6) : * / 6 +03 6) : * / 6 0,(1+ (5 6) ;)) . 0(18 / 7 73 * ?%
o 7) * +1 N 3 * ? M 0) (1 3 2(3, 3 * ? +0) + , - +0 (1 * / + (* 0(7 N
60 / . , / 5) 11) 1 + / : * / 6 * (7 3 * ? ?/) 1 * / + 03 : (+ - 3224 :) 4
0(7 03 +0) * 10322 6) 134 + / +0) - * 9 - 3, ?) ? 23 * 9 - 39)
/ 5 1 / 7) .) , 1 / * 1 4<0 / 03<) 3, 9 -) ? / , 311) , +) ? + 03 13 * 8 + (L
5(83+(/ * (1 * / + 0) . , / .) , 9, / - * ? / 5 311 - , 3 * 8) 3 * ? +0)
) <(?) * 8) / 5 / - , -1+(5(83+(/ * 3 * ? +03 (+ (1)) / ,)H3
& 5 / , 7) * + / 2 / / , + / +0) (, 6 / , ; 1 31 +0) . , / / 5 / 5
+0) (, :) (* 9 + , -) :) 2() <) , 1 D) 83 * / * 24 134 +03 +0) 4
? (,) 8+24 8 / * +, 3 ? (8 + 0) 3 . / 1+2) 3 * ? +03 +0) ,) 5 / ,) +0) 4 3,)
7 / 1 8) , +3(* 24 7(1+3 :) * M 0 / 1 / +0) * ;)) .) +0 +0) (
M 6 / , ? / 5 0,(1+ (* 0(7 <) , (24 (1 +0) 2/<) / 5 / ? .) ,) %
o 5) 8+) ? N 4 +2((1 3 . / 1+2) 1 +03 +0) 4 6) ,) (* 0,(1+
3 * ? ; 4 +0) 137) 7) 3 * 1 6) 7 - 1 (+ / 5 / - , 1) 2<) 1 321 / '
(5 6) 6 / - 2? * / + ?) 8) (<) / - , 1) 2<) 1) +0) ,) 5 / ,) M +03
M 13+0 0) 3 : (?) +0 (* 0,(1+ / - 90 0(71) 25 1 / + / 632 :) <) *
o 31 0) 632 :) ? N 3 * ? * / 8 / 7 ,) +) * + ' - ?9) 6(22 :) 2() <) 0(1
311) , +(/ * (5 0(1 1 . (, (+ 3 * ? 8 / * ? - 8 + 03 : (+ - 3224 :) 8 / * + , 3, 4
+ / +0 0/1) / 5 0(1 / , ? / 5 / , 3 + 231 + 0) 60 / 031 7 / 1 + 82/1) 24
8 / .) ? 0,(1+ 1) @ 37 . 2) 6(22 :) 5 / - * ? + / :) +0) :) 1 +
0,(1+(3 * , 3 * ? + / 03<) :) 1 + ?) 7 / * 1 + , 3 +) ? 0(1 53(+0 + / :)
2(<(* 9 3 * ? 0(1 2/<) 1(* 8) ,)

F >

0) +0(* 91 3 : /<) 1 . / ;) * 3,) M * / *) 6 8 / 7 73 * ? 7) * + 1 N
/ , ?) 823, 3+(/ * 1 : - + +0) 137) 60(80 322 +0) ?(18(. 2) 1 / 5
0,(1+ 03<) 0) 3, ? 5, / 7 +0) :) 9(** (* 9 +0 / - 90 1 / 7) 355) 8 +
+ / + ,) 3 + +0) 7 31 * / <) 2+(1) <) * 31 / +0), 1 ? / +0) .) 8 - 2(3,
? / 8 + (*) 1 / 5 3 9, 3 + - (+ / - 1 132 <3+(/ * - + 0,(1+(3 * +4 (* L
1+) 3 ? / 5 ,) * ?), (* 9 M +0) 2/<) / 5 / ? N 3 * ? 7) * ' 3 * ? 9 / / ?
6 / , : 1 1 - .) 52 - / - 1 3 * ? - **) 8) 113, 4 5 - , * (10) 1 - 1 6 (0
*) 6 7 / + (<) 1 3 * ? 2341 - 1 - * ?) , 5 - , +0) , / : 2(93+(/ * 1 + /
3 : / - * ? (* +0) 7 ' 3 * ? (+ 9(<) 1 + 1 *) 6 ? (,) 8+(/ * 1 8 / * 8) , * L
(* 9 +0) 2/<) / 5 / - ' *) (90 : / - 1 ' : 4 ,) C - (/ * 9 2/<) + / / - '
: ,) +0,) * 5 / , 0,(1+ 1 13 :) 3 * ? + / - ,) *) 7 0(1 35+) , +0) ,
) @ 37 . 2) / 5 0(1 2/<) + / -1 0) 1) + 0(* 91 3,) + , -) 3 * ?
(7 . / , +3 * + 388 / , ? (* 9 + / 0(1 8 / * ? - 8 + / 63, ? 1 0(1 ,) ?)) 7) ?
. ,) / . 2) ' 3 * ? +0) (, ,) 8 - 2(3, , . , (<(2) 9) 1 3 * ? / : 23+(/ * 1 M :) %
M 83 - 1) ' +0) ?3, : *) 11 (1 . 31 + ' 3 * ? +0) + , -) 2(90 + * / 6
M 10(*) +0 N 3 * ? 6) 7 - 1 + ,) 7) 7 :) , ' +03 + 03 + ,) ? / 5 +0) '
: .) +0,) * / , / 5 *) (90 : / - , 1 3 * ? +0) , .) <32) * 8) / 5 3 * 4 73 L
2(9 * 3 * + . 311(/ * ' (1 . , / .) , + (/ * 3 : 24 3 . , / / 5 +03 + 3 73 * (1
1 + (22 (* ? 3, : *) 11 0) ?) 9,)) ' / 5 / - ' 0 / 24 2/<) (1 +0)
. , / .) ' 8, (+) (/ * 3 * ? 1 + 3 * ? 3, ? / 5 / - ' (22 - 7 (* 3 + (/ * ' 31 6) 22
31 +0) :) 1 + . ,) 11) , <3+(<) 5, / 7 1(* 3 * ? +0) 7 / 1 + 38 + (<)
. , (* 8(. 2) ' / 5 / :) ? () * 8)) 60 / M 2/<) + 0 0(1 : , / +0) , N
7 / 1 + 5), <) * + 24 6(+0 3 . - ,) 0) 3, + ' 3 : (?) 1 (* +0) 82) 3,) 1 +
2(90 + ' 3 * ? 6(22 :) :) 1 + ;) , + 5, / 7 1 + - 7 : 2(* 9 ' / ' 5, / 7 ' / 8831
1(/ * (* 9 +0) ' 53221 / 5 / +0) , 1 ' : - + 0) ' 60 / (1 / 53 < (/ 2) * + ' 1) 25(10 '
3 * ? 732(8 / - 1 +) 7 .) , 0 / 6) <) , 0) 734 : / 31 + 50(1 : * / 6 %
") ? 9) ' 632 ; 1 (* ? 3, ; *) 11 ' 3 * ? (1 (* +0) ' , / 3 ? + / ?) 1 + , - 8 + (/ *

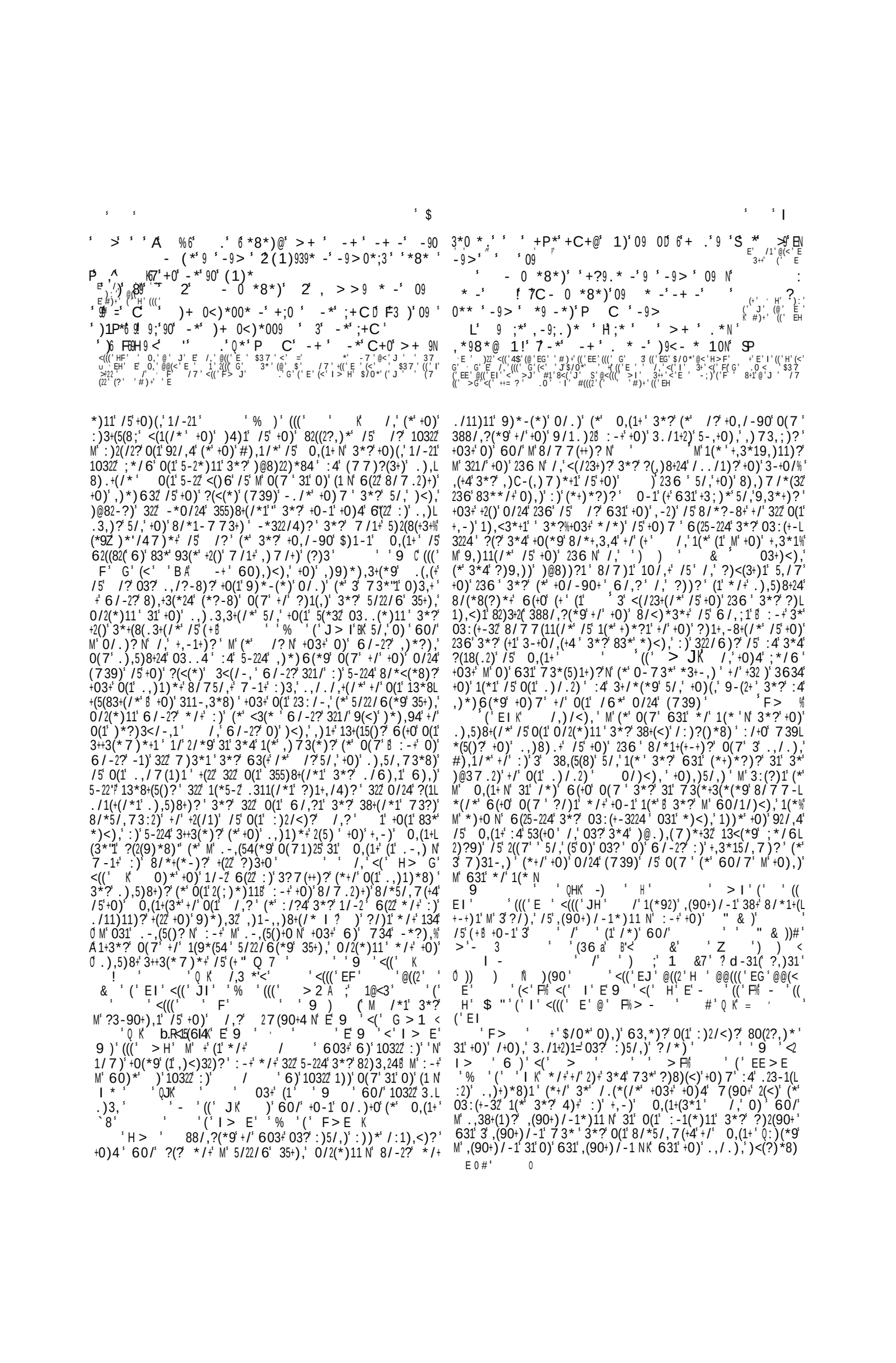
+0 / - 90 0) :) * / + 3 + 322 363,) 60(+0), ' 0) ' (1 9 / (* 9 ' :) 83 - 1) '
M +0) ' ?3, : *) 11 N 3 * ? +0) ' . , (* 8) / 5 ? 3, ; *) 11 ' M 03<) ' : 2(* ?) ?
M 0(1) 4) 1 N ' <) ' EJ K 0) 1) ' +0(* 91
?) 73 * ? / - ' 82/1) 1 + 3 +) * + (/ * ' 3 * ? 7 / 1 + 1), (/ - 1 1) 25 %
) @ 37 (* 3 + (/ * ' 3 * ? 10 / - 2? 2) 3? - 1) 3, *) 1 + 24 + / ' . , 34 ' +03 +
/ ? 6 / - 2? 10) 6 - 1 603 + 6) 3,) ' 3 * ? 60(+0), ' 6) ' 3,) ' 9 / (* 9

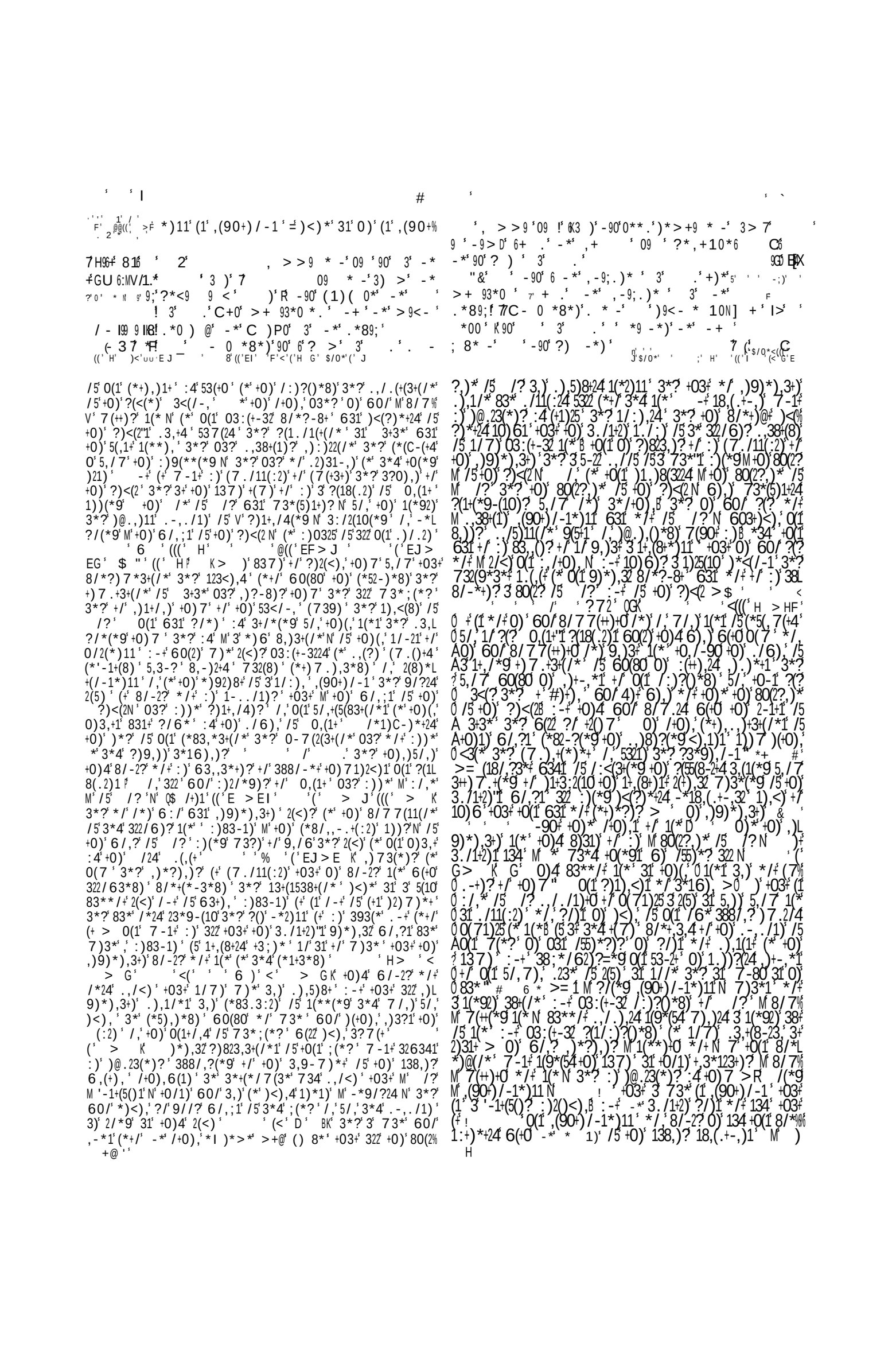
' E > F

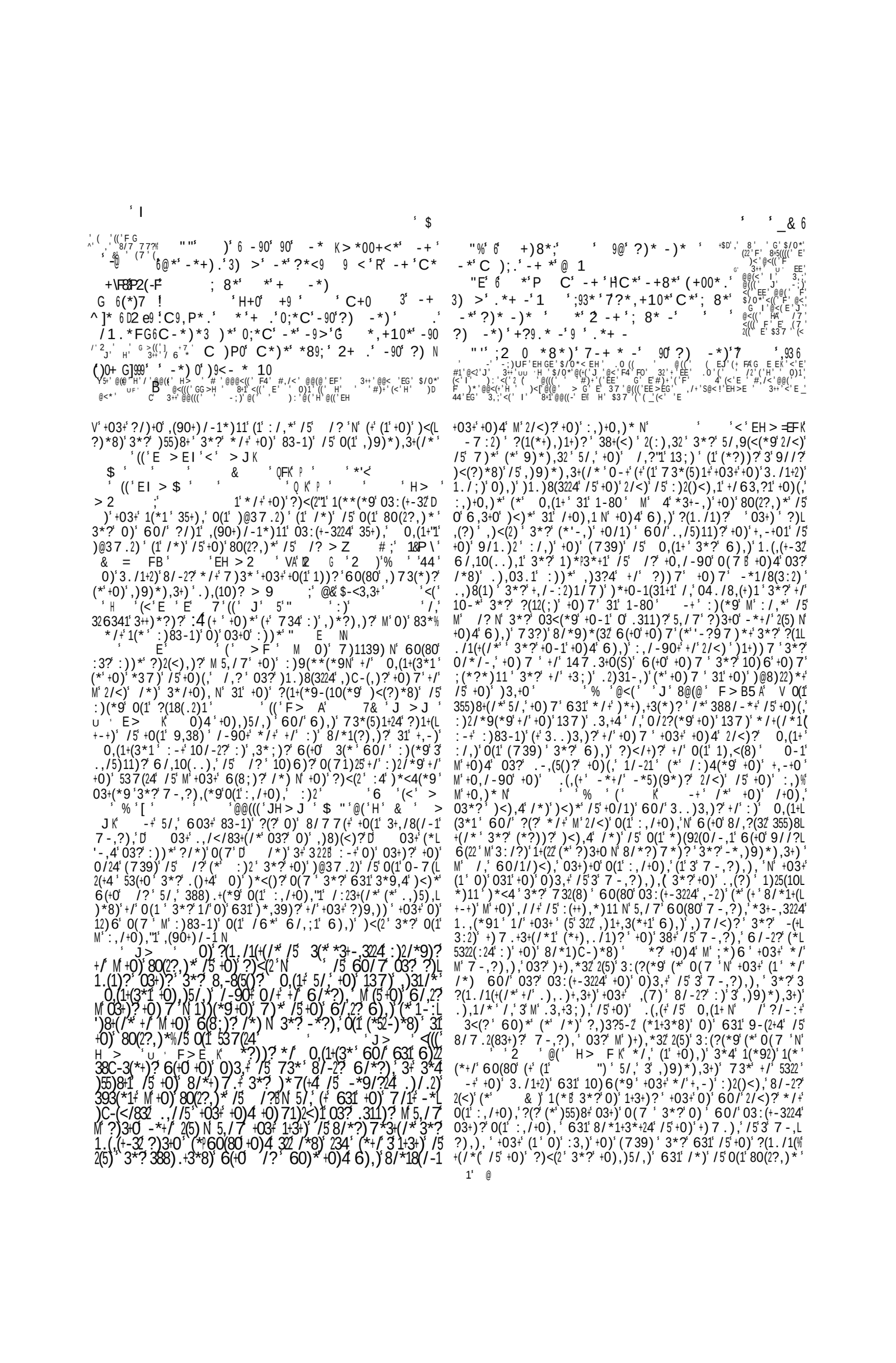
0) * +0),) (1 ,) 32 M 53(+0 +03 + 6 / , ;) +0 : 4 2/<) N) <) *
M 2(+2) 80(2?,) * N 3 * ? 6) 3, :) 2() <), 1 734 :) 311 - ,) ? ' +03 +
M +0) (, 1(* 1 3,) ' 5 / , 9(<) * +0) 7 N ' 5 / , ' +0) ' 13 ;) ' / 5 0,(1+ '
3 * ? +0 / - 90 +0),) ' 3,) ' ? (55),) * + ?) 9,)) 1 / 5 9, / 6 +0 ' 1 +,) * 9 +0 '
: * / 62) ? 9) ' 3 * ? 9, 38) ' 3 7 / * 9 o +0) ' 1 / * 1 3 * ? ? 3 - 90 +) , 1 / 5
M +0) / , ? 32 7(90+4 N 3 * ? 1 / 7) ' / 5 +0) 7 ' 03<) / : + 3 (*) ?
7 / ,) <(8 + / , () 1 / <) , +0) 6(8 ;) ? / *) ' / ' 3,) 7 / ,) 5(+ 5 / ,
38+(<) 1) , <(8) / ' + / 9(<) 6(1) 8 / - * 1) 2 + 03 * / +0) , 1 3 ,) 4) +
+0) 4 3,) 322 32(;) ?) 3, + / +0) (, 0) 3<) * 24 3+0), 0) 4 322
03<) 1 / 7) M : * / 62) ? 9) / 5 0(7 N 3 * ? 2/<) + / 0(7 3 * ?'
+0, / - 90 M 0(1 6 / , ? 3 : (? (* 9 (* +0) 7 N 0) 6(22 2) 3? 5 / , +0
+0) 4 / - * 9 / *) 1 / 5 0(1 53 7(24 + / +0) 137) <(8 + / , () 1 ' 3 * ?
+, 3(* +0) 7 - ' + / 3 7) 31 - ,) / 5 +0) 137) <(9 / - , 3 * ? 73 + - L
, (+4 ' + / 60(80 / +0), 1 03<) 32,) 3 ? 4 3+3(* ?) ' - + 322 ' 60 /
6 / - 2? 103,) +0) 1) : 2) 11(* 91 7 - 1 + :) 83,) 5 - 2 o * / + / 2/<)
o +0) 6 / , ? ? N / , 3 * 4 / 5 (+1 . / 22 - + (* 9 <3 * + (+0) 1 0(1 (? / 23+, 4 '
,) 73(* (* 9 - * 1 - : ? -) ? (* +0) 0) 3, + 1 / 5 73 * 4 . , / 5) 11 / , 1 / 5
+0) 9 / 1 .) 2 ' / 8831 (/ * 1 +0) (, 3 . / 1+314 / , ' + / +32 - * 5, - (+5 - 2 *) 11 B
3 * ? ' +0, / - 90 1 / 7) ' ,) 73(* 1 / 5 (+ ' * - 7 :) , 1 3,) :) . + 5, / 7
8 / 75 / , + 3 * ? 311 - , 3 * 8) ' +0) (, 1 , (, (+ - 32 2(5) 8 / * + (* -) 1 2 / 6
3 * ? 5)) : 2) ' +0) 4 3,) 7),) : 3 :) 1 / , ? 63, 51 + / + 0)) * ? / 5
+0) (, ' 2341 3 * ?) * +),) +), * (+4 :) 5 / ,) +0) 4 / : + 3 (* 3 * 4 8 / 7 L
5 / , +3 : 2) 13+(1538+(/ * 603 + +0) (,) +), * 32 1+3 +) 6(22 :) X
$ " (< EK *?)) ? V 322 +03 + (1 * +0) 6 / , 2? N
31 3 . / 1+3+) ' 3 * ? 1 / +0) : (* 9 ? / 7 / 5 +0) ?) <(2 ' (1 ? (3 7) + , (L
83224 / . / 1(+) + / +0) 0 / 2(*) 11 ' 1 . (, (+ - 32(+4 +) 7 .) , 3 * 8) '
0 - 7(2(+4 3 * ? 2 / 62(*) 11 / 5 0,(1+(3 * (+4 B (+1 . 2) 31 - ,) 1 ' (*L
+) ,) 1+1 ' . / 7 . 1 ' 3 * ? 0 / * / - , 1 ' 83 * / * 24) @ 8(+) ' 3 * ? 1 +,) * 9 +0) *
+0) . / .) * 1(+0) 1 / 5 / - ' 5322) * * 3 + - ,) 60(80 (+ (1 / - ' 9,) 3 +
: - 1(*) 11 3 * ? (* +)) 1 + / + / 1 - : ? -) 3 * ? 8, - 8(54 0) , - , 1 - (+ '
38C - (1+(/ * ' / ,) * 1 / 47) * + / 5 +0) 7 ' +) * ? 1 / * 24 + / . / 22 - + (/ *
3 * ? 8 / * ?) 7 * 3 + (/ * ' +0) 4 3,) ' 1 / / * M 311(* 9 3634 N + / ' :)
. / 11) 11) ? * / 7 / ,) ' 3 * ? 0) 60 / 031 * / +0(* 9 7 / ,)) * ? - , L
(* 9 6(22),) 2 / * 9 63 * + 3 ? , / . / 5 63+), + / 8 / / 2 0(1 + / * 9 -) '
3 * ? :) - * 3 : 2) + / . , / 8 - ,) (+ ' 60(21 + +0) . / , + (/ * / 5 0(7 '
M 60 / ? /) + 0 +0) 6(22 / 5 / ? 1032 :) ' 5 / ,) <), N 0 # ' @ '
& @ < ' I > E K) + 3,) +0) 1) ' <3 * (+0) 1 1 / 322 - , (* 9 + /
+0) ,) 73(* 1 / 5 8 / , - . + (/ * (* / - , 0) 3, + 1 ' +03 + 6(+0 / - + 8 / * L
1+3 * + 63+80(* 9 3 * ? . , 34) , 6) 83 * * / +) 183 .) / , / : + 3 (*
<(8+ / , 4 / <) , +0) 6 / , 2? ' 3 * ? 0(7 60 / (1 M +0) 9 / ? N 3 * ?
. , (* 8) / 5 (+

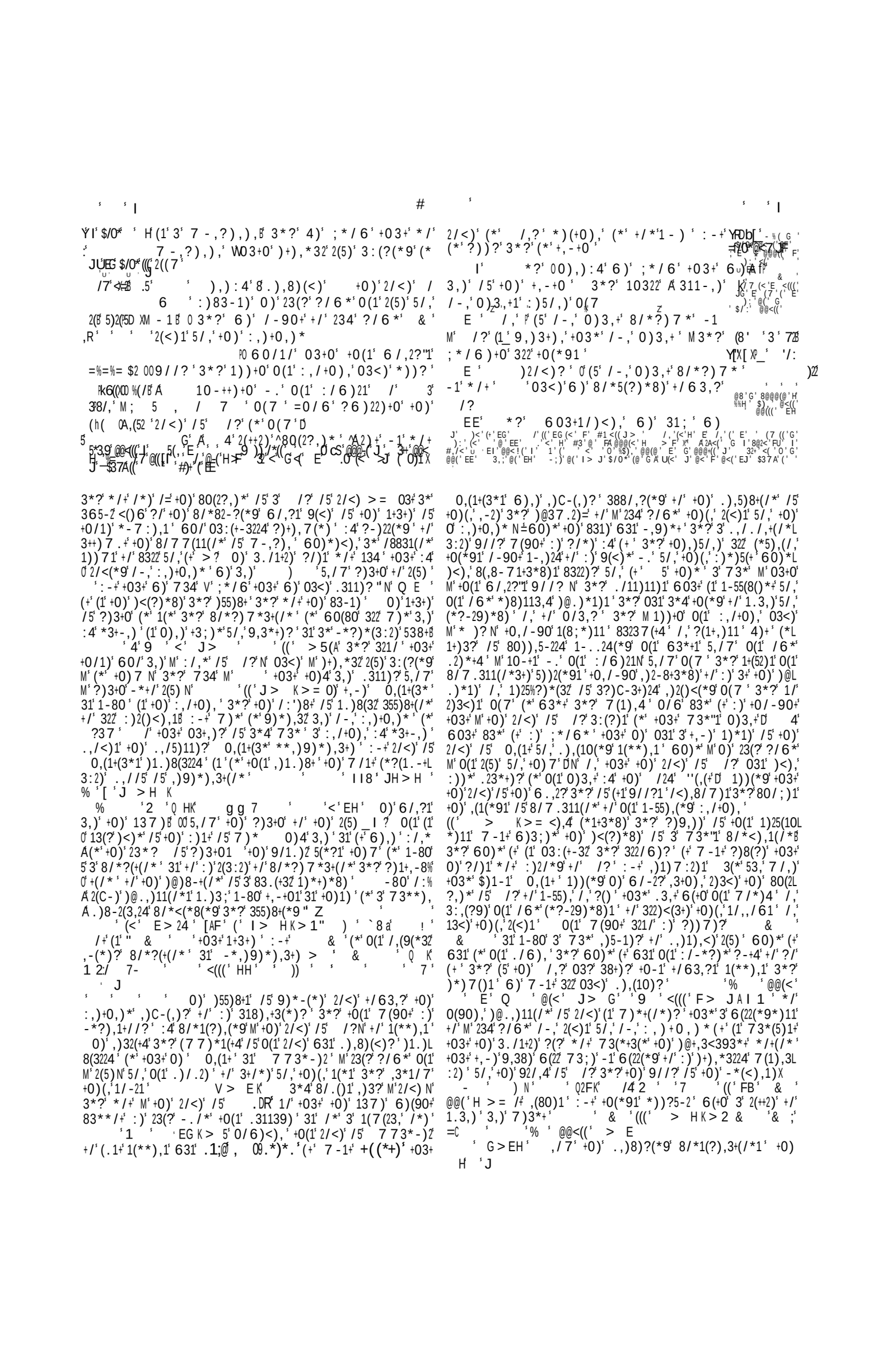
' G > E

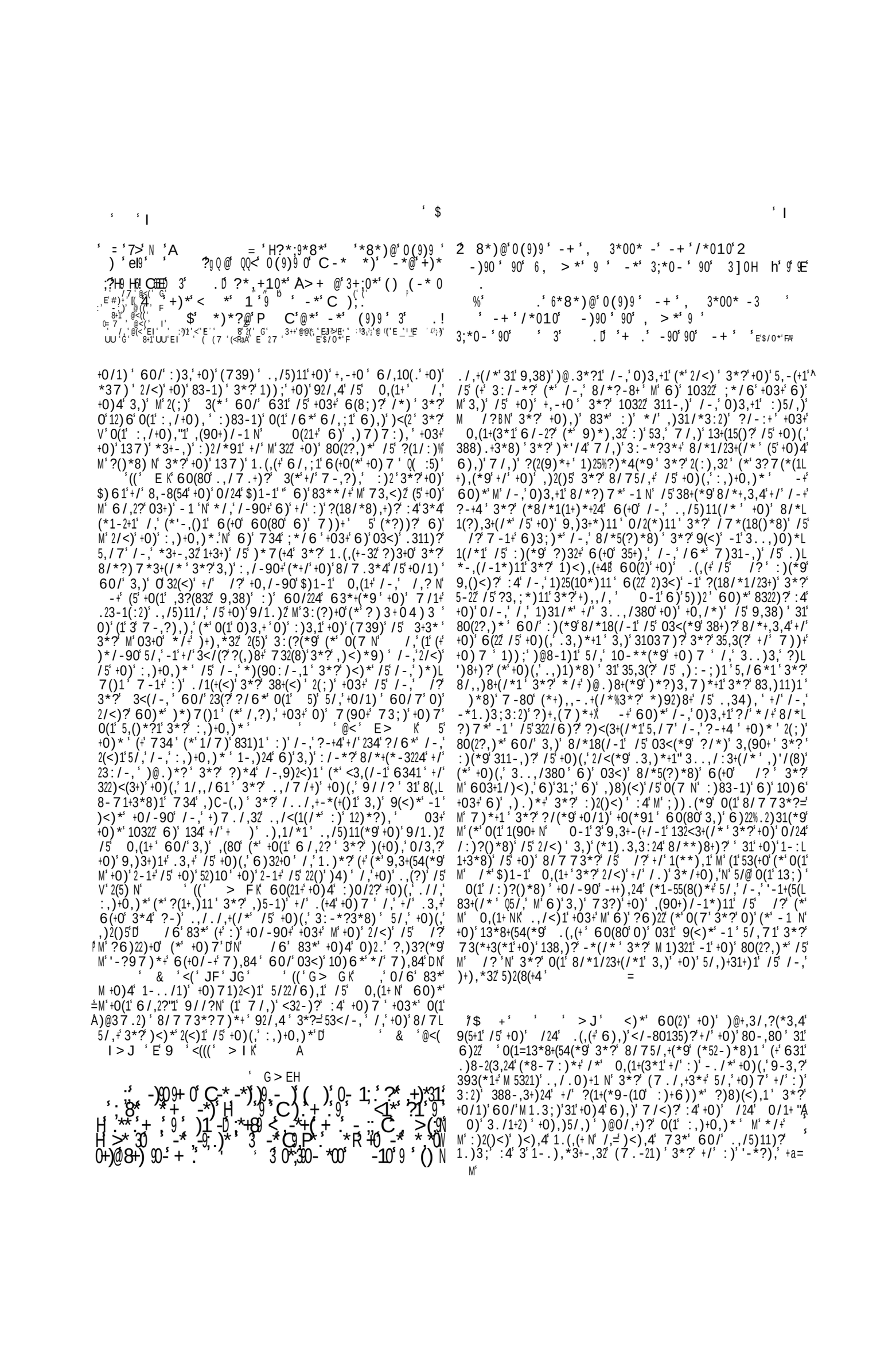
0/1) ' 60 / 03<) ' :)) * ?) 2(<) ,) ? 5, / 7 +03 + / , (9(* 32 3 * ?
- * (<) , 132 (? / 23+, 4 M +0) 2/<) / 5 +0) 6 / , 2? ' 3 * ? +0) +0(* 91
E 0

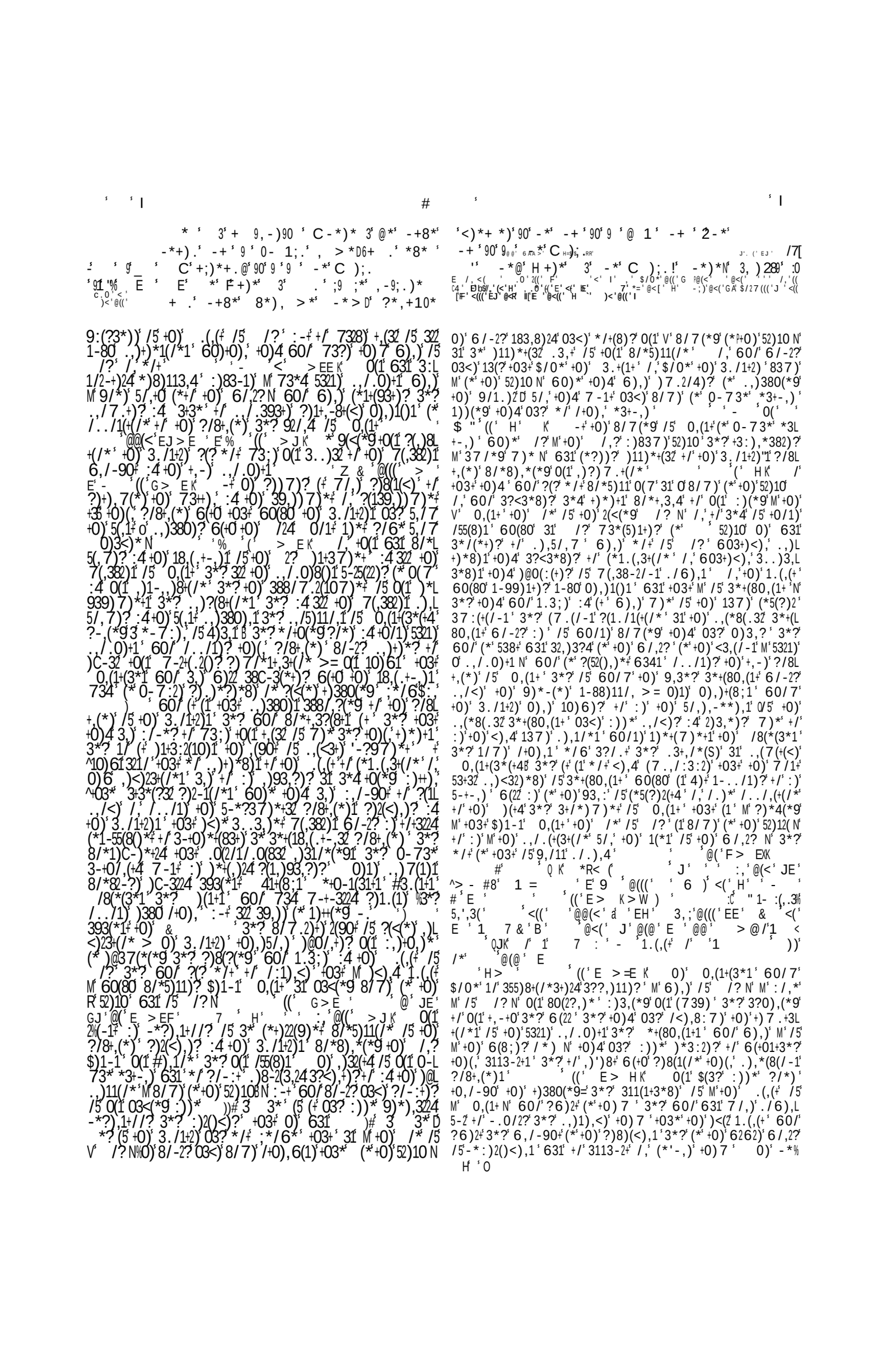




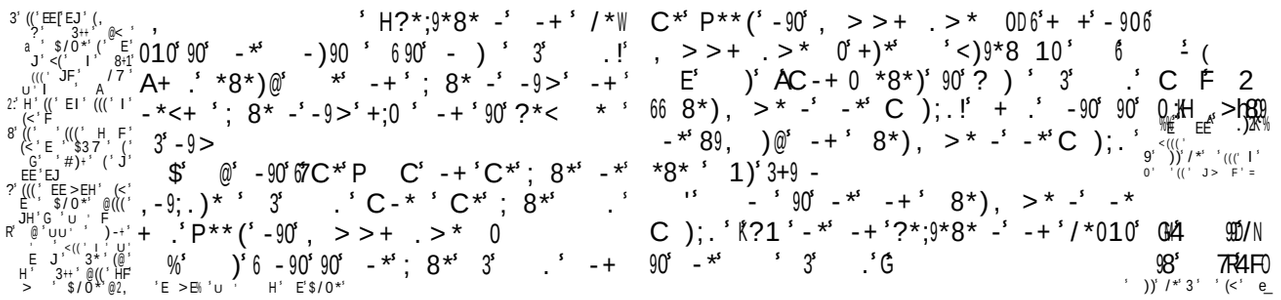


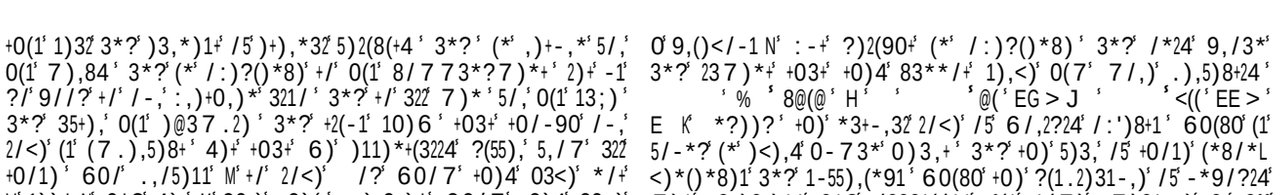


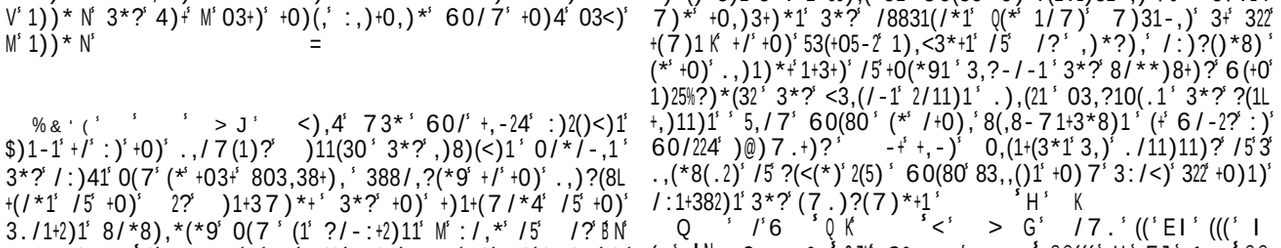


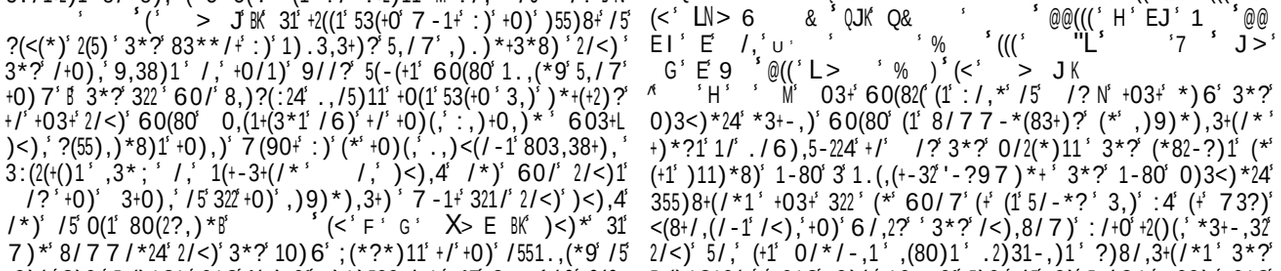


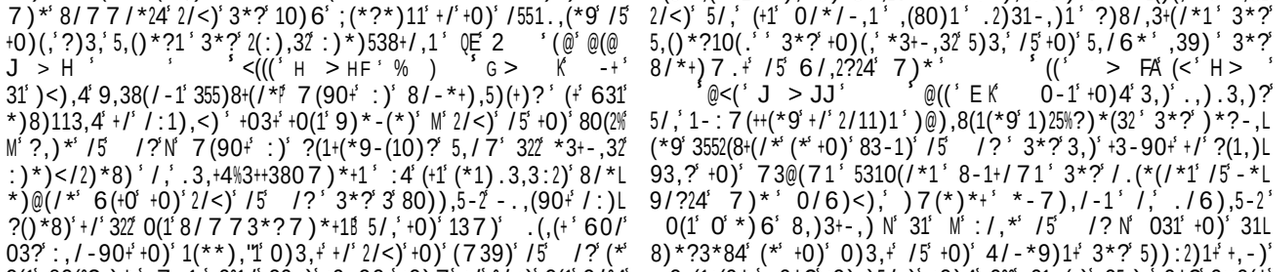
A

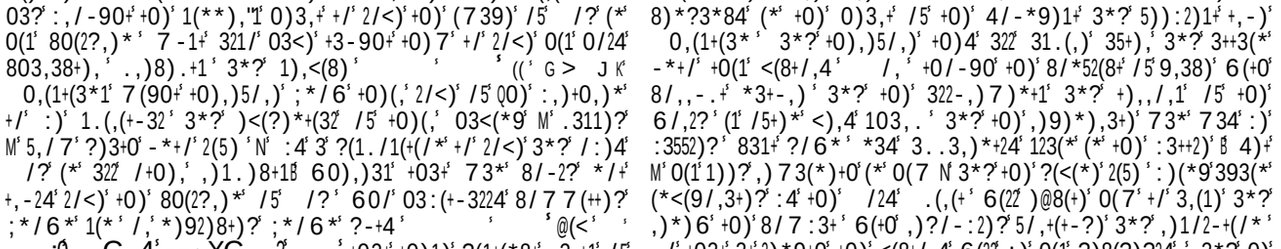


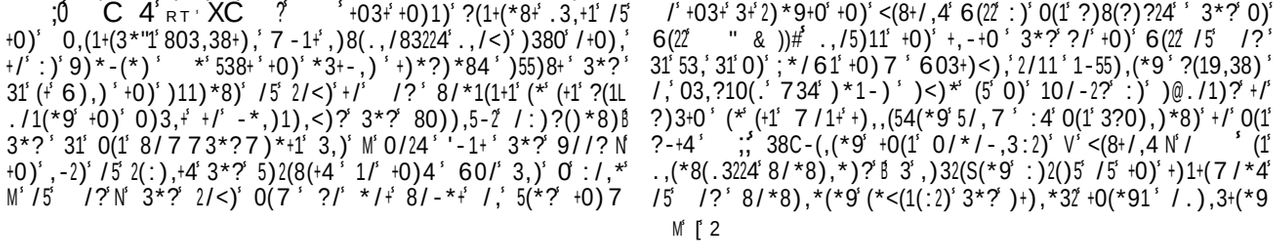


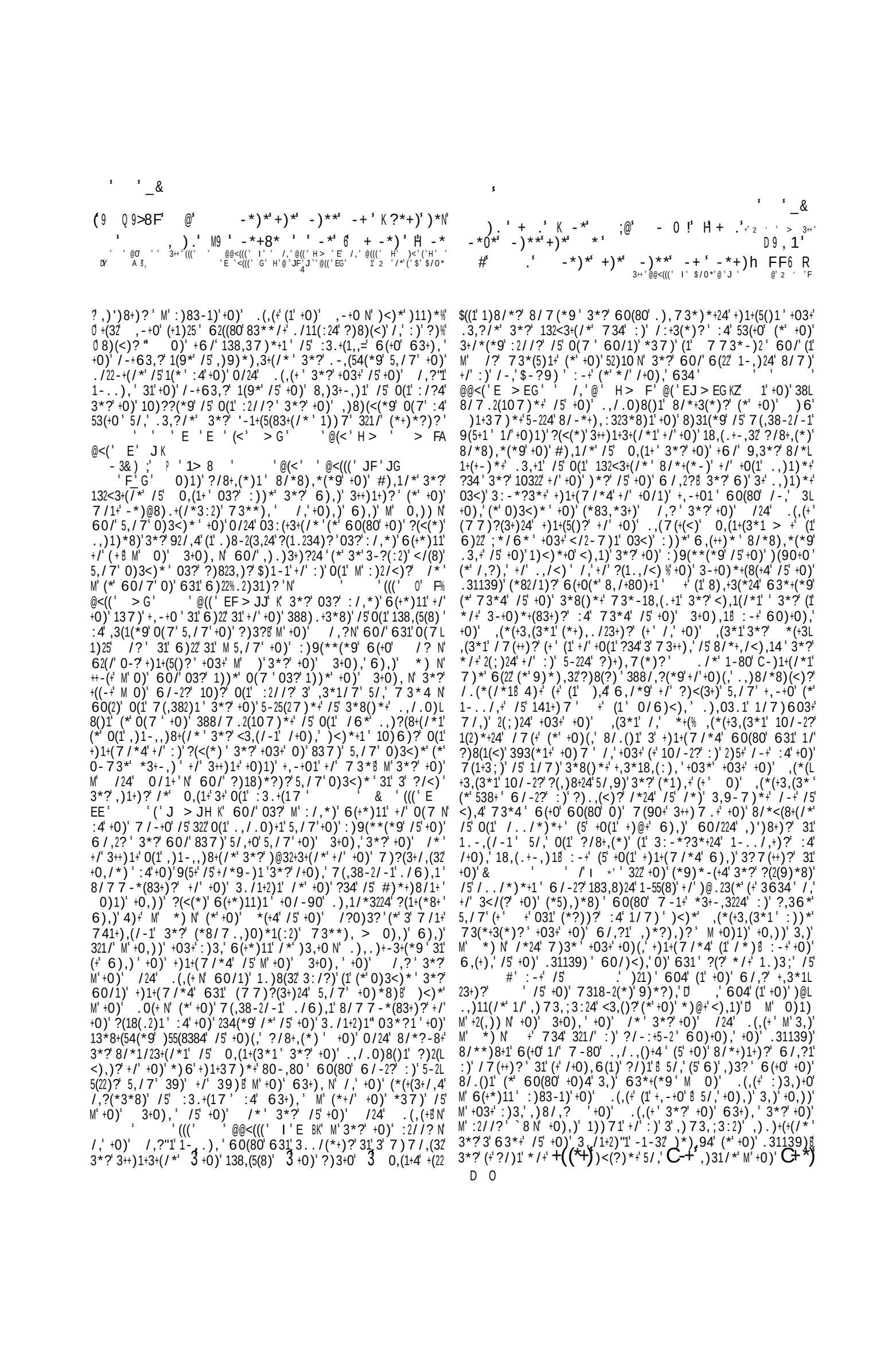


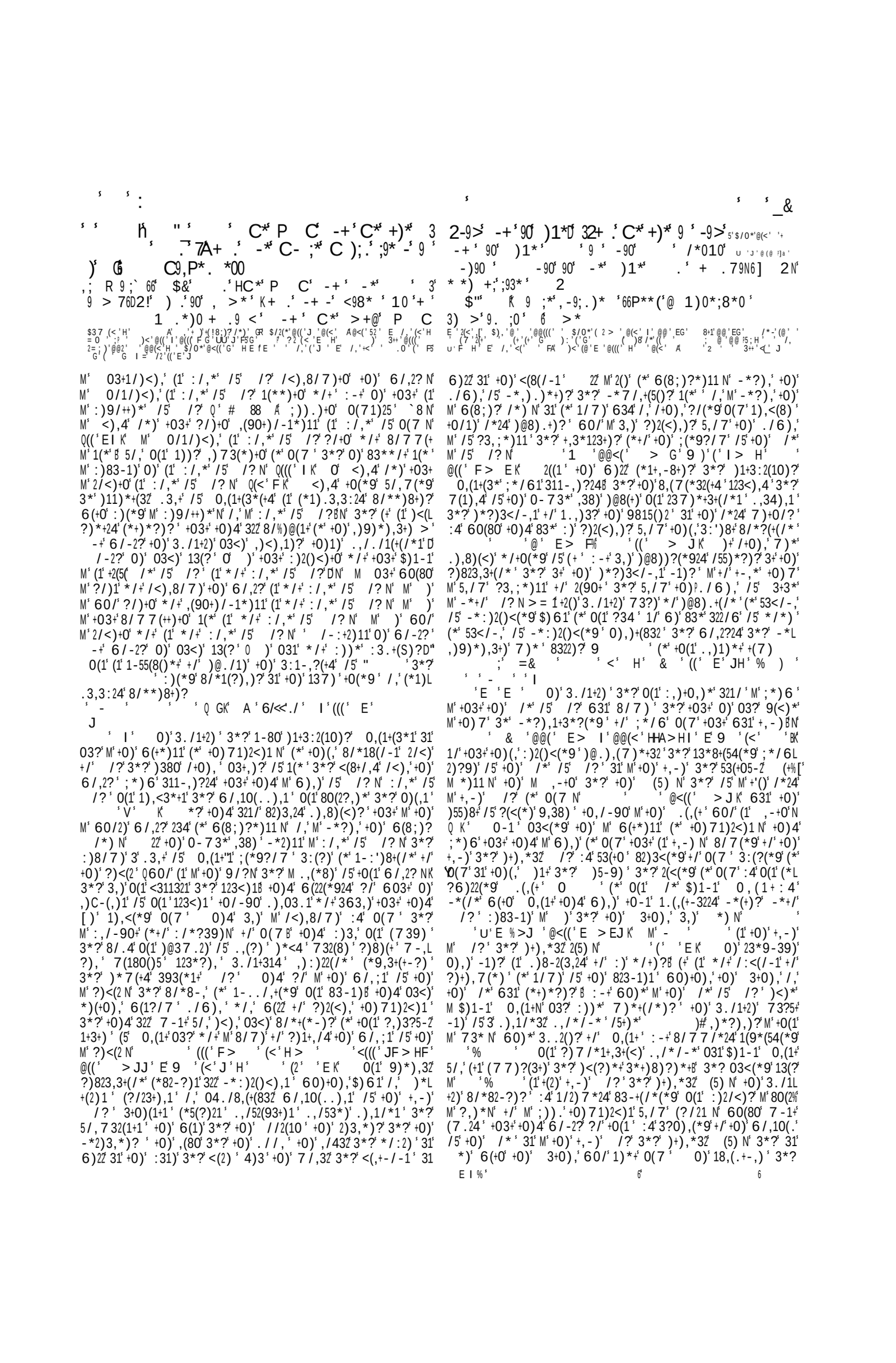












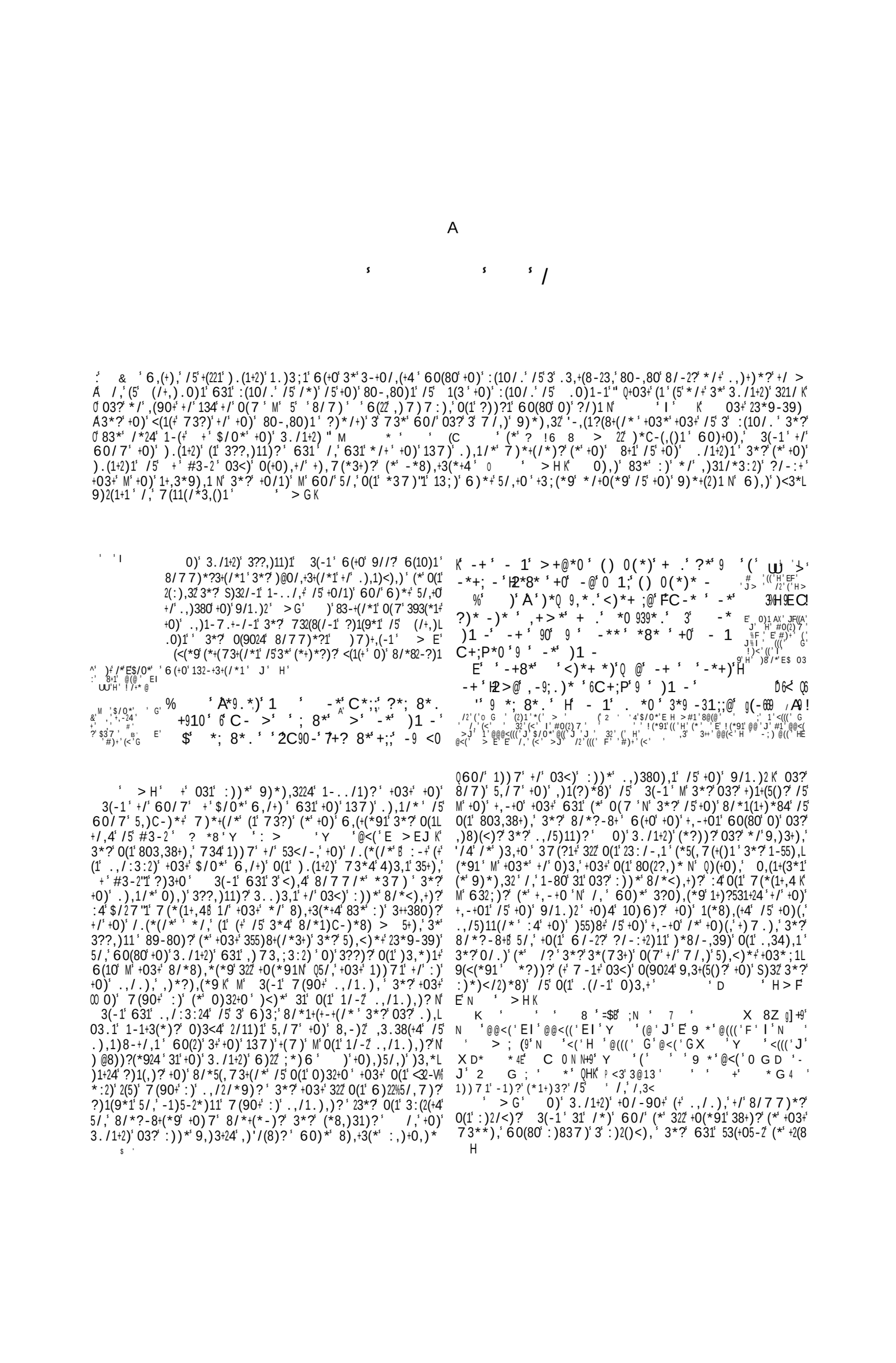
,3*+)? :4 +0) 6/,? /5 /? (1,)93,?(*9 +0)* +0) 1)25L
6(1) ,)31/*(*91 /51-80 (*8/7 .)+)*+ '-?9)1 2)+ -1 +03* ;L
5-224 ,)8)(<) +0) ,)8/,? /5 8,(.+-,) +03+ 0 /? 03+0 9(<)*
M -1)+),*32 2(5) 3*? +03+ +0(1 2(5) (1 (* 0(1 /* 0) 60/ 03+0
M +0) /* 03+0 2(5) 3*? 0) 60/ 03+0 */+ +0) /* /5 /?
03+0 */+ 2(5) N 0-1 6) 0 734 9(<) ?(2(9)*8)N +/ /:+3(*
3* 311-,3*8) /5 /-, (*+),)1+ (* 0,(1+ 3*? ;*/6 +03+ 6)
03<))+),*32 2(5) 3*? ?3(24 9,/6 1+,/*9), (* 53(+0 7/,)
1+)?531+ 3*? ,)'/(8(*9 (* 0/.) 0 3*? 32634 1 3:/-*?(*9 (*
M +0) 6/,; /5 +0) /,? ;*/6(*9 +03+ /-,23:/-,(1 */+ (*
M <3(* (* +0) /,? N

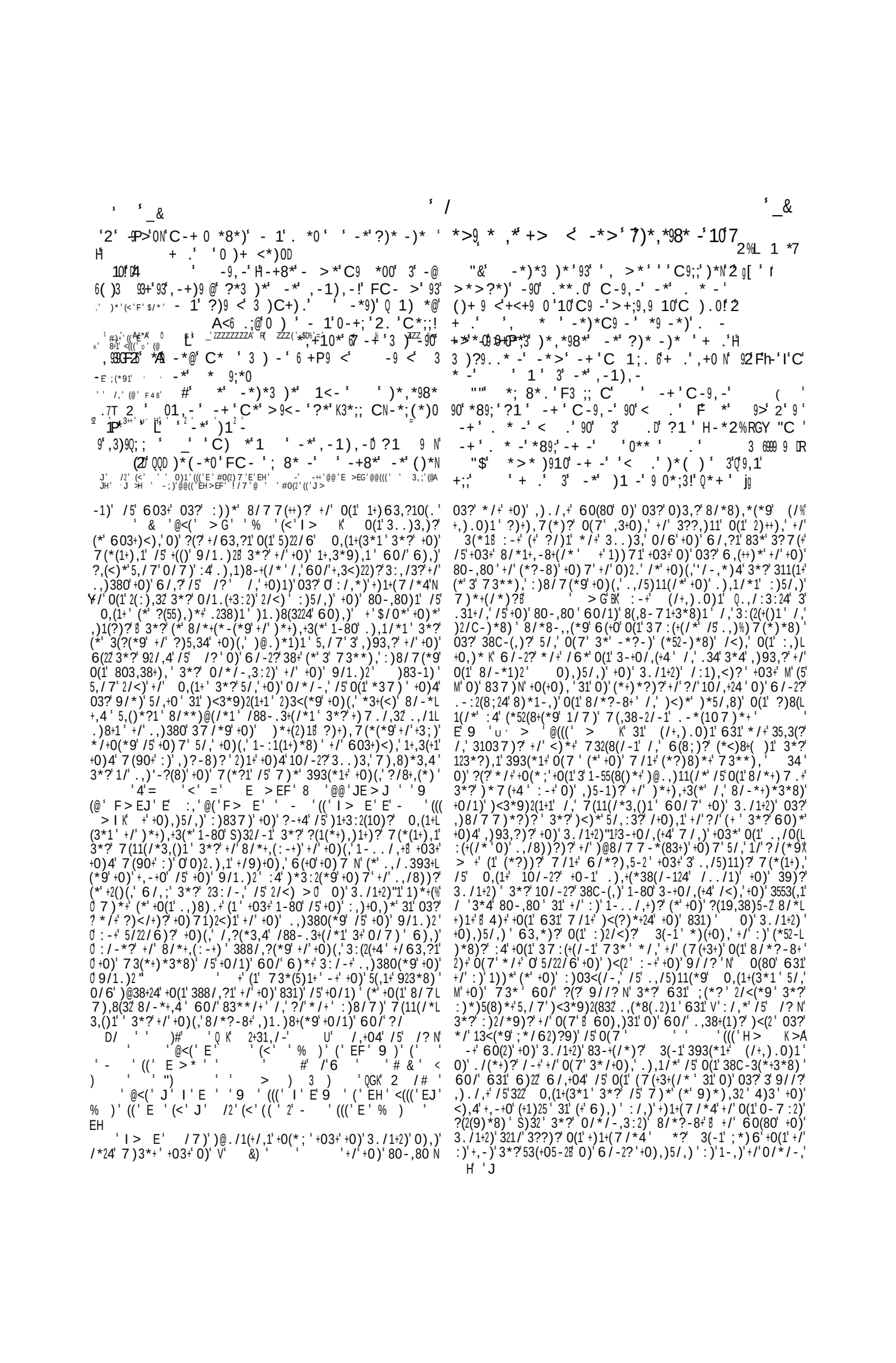
H>E

/*5(?(*9 (* +0) 2/<) /5 /-, 0)3<)*(4 3+0), 3*?
8/7(*9 +/ 0(7 +0,/-90 /-,9,)3+ ?</83+) 6) 734 :)
311-,)?+03+ 0) 32634 1 0)3,1 388).+1 3*? 3*16),1 322 +0/1)
.,34),1 60(80 388/,? 6(+0 0(1 6(22 3*? +)*? +/ /-, ,)32
:)*)5(+) 10/-2? +0),)5/,) 3:/-*? (* 1-..2(83+(/* 5/,
/-, :,)+0,)* 31 6)22 31 5/, /-,1)2<)1)1.)8(3224 1));(*9
+/ +0) /+? +/ .3,?/* 3*? ,)8/<), +0) 5322)* 31 6)22 31 +/
,)2()<) +0) +)7.+)? 3*? 3552(8+)?8 3*? 31 6) 83**/+ ;*/6
60/ 031 M 1(**)? -*+/ ?)3+0 N 6) 10/-2? */+ ,)3?(24
4()2?+/ ?(18/-,39)7)*+ ,)1.)8+(*9 +0/1) 60/7 6) /*8)
8/*1(?),)? 31 :,)+0,)*) /-90+ +/ :) <),4 +03*;5-2
+03+ */ M 1(* (1 -*+/ ?)3+0 N 388/,?(*9 +/ +0) 9/1.)2 /5
60(80 3 73* +,-24 ,).)*+1 3*? +03+ /? 6(22)*3:2)
322 +0/1) 60/ 3,) :/,* /5 0(7 +/ ;)). +0)71)2<)1 +03+
0 +0) 6(8;)? /*)N 734 *)<), .,)<3(2 /* +0)7 +/ 1(* (*
+0) 73**),0+0)4 ?/ 60/ 3,) V 9(<)* -. +/ 3 ,).,/:3+)
0 7(*? N > =5 6) 03<) 1/9,/6*(* 53(+0?3*? 9,38) 31 +/
00 ;*/6 +03+ 6) 3,) /5 /? N 6) 10322 ,)3?(24 .),8)(<)
+03+ M +0) 60/2) 6/,2?2()+0 (* 6(8;)?*)11 N 3*? -*?),
+0) ./6), /5 3+3*,?+0(1 <3(2 10)6 -1 0/6 <31 /-, /:2(93L
+(/*1 3,) +/ ,)?)) 7(*9 2/<) 3*? 1.)8(32 9,38) 3*? (+
/-90+ +/)@8(+) /-,8/*1+3*+ .,34),1 3*? -*,)7(++(*9)*L
?)3</-,1 +/ ./7/+) +0) .,)380(*9 /5 +0) 9/1.)2 3*? +0)
8/*<),1(/* /5 1(**),1 3+ 0/7) 3*? 3:,/3?)<)* +/ +0)
)*?1 /5 +0))3,+0 :4)<),4 7)3*1 (* /-, ./6), 3../4
3,) +0)4 60/ M ;*/6 +03+ +0) /* /5 /?(1 8/7) N 3*?
+/ 60/7 /? M 03+0 9(<)* 3* -*?),1+3*?(*9 +/ ;*/6 N
3*? 3 0)3,+ +/ ,)24 /* M 0(7 +03+ (1 +,-)XN 34 +0(1 :)
/-, .,(<(2)9) 734 6) M ?6)22 (* 0,(1+ 3*? 0,(1 (*
M -1 N 734 6) :) M /*)6(+0 0(7 3*? 0) 6(+0 -1 5/,
M - (1 +0) +,-) /? 3*?)+),*32 2(5)BN +0-1 /-, 5)22/6L
10(. 6(22 :) 6(+0 +0) 3+0), 3*? +0) /* +0,/-90 +0)
.(,(+ 3*? 6) 10322 :) .,)1),<)? 5,/7 322 (?/21 3*? ?)
1+,-8+(<) 0),)1()1 3*? 5,/7 +0) (?/23+,/-1 2/<) /5 6/,2224
/:')8+1 3*? :) M ;).+ :4 +0) ./6), /5 /?+0,/-90 53(+0
M -*+/)+),*32 132<3+(/* N % (J> K

A

A





7 F7' H07+ .'C*' '?*+)')*,).D + .'@*'P C' -+' 1)')*,).'90')1*
' ' ' '/ -' 2%' '-+.'2>+ @' -9 <0' 'C)9 *'?1' 'C9;;' 'C9 -'9 P' + .'(* 'C)9 *'1 ' -**D

"E' 1' ')10' ' 0-+;;' 0-) ;@' 0**'A' ' & ' ' -**' + .'C*'0-+9)0(*+P' K3+,*' '3+,*A(+:DD98;K\ +; 7 *+,*' ' -**' 44 *' 3)9* .0' 0+N' $% , < (EK ;1 *' -**' 7)**' -*' 3)9* .0' ?@6 +>*

+ .'9>9 + *'0'*I,*···* '+ >+ XK')98+ *' 33* ,*0'+<+9 0' K' 1)0*;8*0' >10'?*'3)<98* '+ .'3)< * D' ?1'C-*' -* 7 393* ,* 90' + '9>(*.9>* ' ' -*'3+9 -'+ .'8*)@ ()*01.9N ?,9+,' ' -*,-1),-'9'90' '?*' ((0*.' + .' (* ;@')*N 7() 8*.' K +

K ' ' ' ' * 7 ! 'QIK' (!) ' ! ; U' ' ' ' ' ! ' 9 ' ' 2' ; ' ' @<('> '?'@<(((' > H'@@'E >EG'@@(((' X ' 6 ' UU' H >HF% @@(Mb% EH>EF' ! ' <(((' GX EH K>' D* 8'Q K' WH< 0/ U' ' ; ' JXV 'Q K' N(!' G ' ' ' '8 4E' P '343 /6/6' ? *6'(((' H' 6'<('I'JJ'J ' ! '@(<' FA' D '((' 'E '(((' F' 4G ' '8 '* * 'Q EK' A &- ' ' '@(' E' H' JI

' J' H' H' -*'3)9* .0R' +0' +' *)>' 3' >1 1+,+..)*00 +> <' -)90 9+ 0' +. (*.' *0(*,9+;;@ ?@ -*' ? .@ ,+;;*.' f1+P*)0'90'3 1 .' ;@9 ' -90' (;+,*' [? *8'Y UG2 ' , (9*0')*+.' * *

] # '

B' C

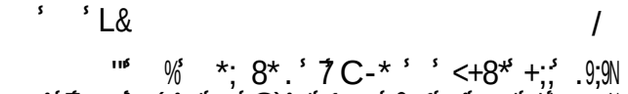
C' >+ @ () 3*00)0' 3' -*' < 0(*',+)*' -*')*' *) W 9 <'C- >' -*'+(0 ;*'0' C).0 >+@ ?*')*8*)0*.D 0' -+' * >10'*+) *0 ;@C90-' + .' ()+@' -+' M' -*9)' 0 1;0' >+@ H' () 0(*) R' +0' -*9)' -*+;.' + .' 1C+).' ,9),1>0 + ,*0' .' 0(9)9 1+,' ;+ <1)' + .' `8+ ' 3' -(*9*3)' -* 0(9)9 1+,' () 8809 0' 3' -*< 0(*;' C9 -' *8*)@ -*)'0@>(W >' 3' .90*+0*D + * .*.' ?@C+ ' 301,,*00' + .'88< 1)' 9 ' *8*)@ -9 <' ,.1,98*' ' -*' <;)@' 3' .' >+@?* ?0*)8*.' 9 ' 1>?*)0' ''?*+)' () ( )9 ' ' -*9)' *I*)W +,' () 0(*)9@' 1é -*)* +)* *8*' 9 ' -*0* .+@0+'3*C' C-' '+)* 0 '*>9 * '9'<)+,*' + .' i*+; 10' 3< .' C)P0' -+' -*' ()*,+)9 10 0 + *' 3' -*9)' -*+;,' +' <98*0' , ,*) +;;' C- '; 8*' -*< 0(*;! + .' -*@' *+) *0 ;@ .*09)* -* ' 9 1+ ,*' 3' -*9)' ;98*0' + .' -*'9 .)*+0* 3' -*9)' +?9;9@ ' < .' + .' -+' -*@ >+@ H' () 0(*)' 9 ' +;' -9 <0' H' *8*' +0' -*9)' 0 .0' () 0(*) R' -*' .1, 3' 01,-' -)90 9+ 0' <98*0' +Q @ '3+9 -31,' >9 90 *)0' C-9,-' , 1 *)W ?+;+ ,*0' -*9)' <)9*3 ' +, 1 3' - 0*' C- '.90<)+,*' -*9)' () 3*009 '! + .' *8*)@)*' *C*.' *0 9> @' C-9,-'90'?) * ' -*9)' C+;P9 <9 '-*')1-R')* *C0' -+'9 C+).'0+ 90W 3+, 9 'D 3)' -*')*0 9,9 <' 3' 01,-' (+0)0' 8*)' -*9)' ,-9;W .)* ' + .' 9 ' ;0*9)' 3)19 31; *00' + .' , 0 ;+9 '4.933*)0' C9.*;@ 3) >' -*' 0*;390-'Q @' 3' () 0(*) 10' -9)*;9 <0')' -+' 3' 01,-' +0' H' ; 8*' -+8*' -*' ()*N*>9 * ,*RX' 6 +)* 0' + ' >9 90 *)0' 0- 1;.' ?*' +0')*+.@ ' ,>>* ' C-+' 90' C*;' .*' +0' ' (9 ' 1'C-+' 90' C) <' 9 ' -* ,.1,' 3' - 0*' C- >' -*@01(*)9 *.D + .'9 .**.' -90' 90N3+)' >)*' (;*+09 <' '+'?* *8 ;* ' >9 . X2 -*3+9 -31,' 0*C+).0' 3' -)90 ' C-* -.)' -*@ +8*' ?** ' *)10*.' C9 -' F' -*' >@0*)9*0' 3' .R')' C9 -' +;* 0' 3' + -*)' 0) ' C9;;' +' ;* < -' H' ?+9 ' +' < .')*( )D R')' ,+' >1;' 9W (;9*.' ,-+)9 9*0')' H' - 0(9+;9@C9 - 1'<)1.<9 <R' ?*' 0' , ,*+;*.' +0' ')*>+9 '1 P C' ' -*',-1),-' = *0' ? ' ' J> '89' >H' ' - ' <' EH' E K' ((;+10*

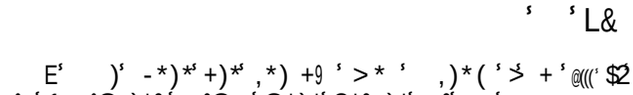
() (*);@'9) .1,*0'*I-) +9 0' + .'*8* ' **.31;')*() 30D ' '" 9 *'I9'$X $$DB' + .'9 .**.' 9'0- 1;.' ?*', O9W .*)*.' +0' + ' +.> 9 9 ' '() ,**.'9 ' -*' 0+>*', > >* .W +?;*'?*-+89 1) X 9 90*)0' + .' >9009 +)9*0'C- '+)*'H', N' H' 0)+9 *.'?@' -*'; 8*' 3' -)90'R' + .' 3' -*'0 1;0' 3' >* ' ';*+8*', >3) +?;*'0 + 9 0' ')* .' -*>0*;8*0'3) >'?*W ; 8*.')*;+ 98*0' 01?>9' '>+ @' + .'<)*+' ()98+ 9 0' + .' *8* ' -+' 3'0C**', >>1 9 'C9 -' -)90 9+ '3)9* .0' + .' +?1 .+ ' >*+ 0' 3'<)+,*R' ' < '3) -' + .'* , 1 *)' (*)9;0' + .'-+).0-9(0'9'0()*+.9 <' -*'< 0(*;D' + .'C- '+)*' , * ' '0)1<<;*'C9 -' (8*) @'9 'H' -*9)';+?1)' 3'; 8*R')+ -*)' -+ 'S19' -*9)'0+9 0')'. '+ @' -9 <' ()*8* ' -*9)' C '01,,*00D +)*' (*,1;9+);@* 9 ;*.' ' -*', 1 * W + ,*' + .'+0090 + ,*' 3' -*9)'3*;; C' -)90 9+ 0' 8*)@' *' +,,).9 <' -90'+?9;9@' 1<-' ' +0090' 01,-' (*)0 0' +0' ,9),1>0 + ,*0')*S19)*D -+'H' -*@'>+@?*'3*;; CN-*;(*)0' 66' ' -*')1 -D R' '+0'+'>+ *)' 3',- 9,*')'+0'93'8 8' ' F'?1'+0' -*' (*)3)>+ ,*' 3'+'9 ,1>?* ' +' -*' (+@>* ' 3'+' .*? ' ;9*')* 1) ' 3'<)+9 1.*' .1*' ' ;@' ' .'?1' ' - 0*'>9009 +)9*0'C- '39)0' ?@01,-' *I*)9 0' + .'()98+9 0'?) 1<-' -*'< 0(*;'9 ' 1)';+ .D + .'H'C- '?*9 <'.*+.'@*'0(*+P R' + .'0+@'0' '+ .' .' H';9P*C90*R' .**.' -+' > *@'>10'?*'C*;;'*I(* .*.' C-9,-'() > *0' -*' ' ()*+,-9 <' 3' -*' < 0(*;' 9' + @' (+)' 3' -*'C);.'! + .'9'90'<)*+ ;@' '?*'C90-*.' -+' +;;' -)90 9+ 0'C 1;.')@' '0+8*' ' ;@' +' ' ?1'9' ()+, 9,+?;*' *+' ! '3) >' -*9)'*I(*0*0'9').*)' ' ,)*+ *' +'31 .'3)', .1, 9 <'01,-'9>( ) + '.*09< 0

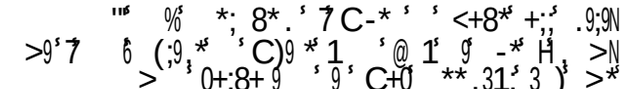
' I > H

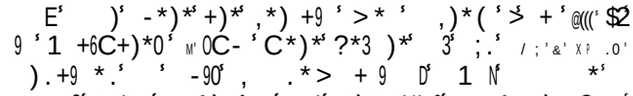
;+0' C*';98*' '>1,-' ' 1)0*;8*0'9' -*0*';1P*C+)>' .+@0' + .'C*' **.' 'C .*)'93', 8* 10' + .'+>?9 9 10' >*'C-'F'; 8*' '-+8*' -*'()*N*>9 * ,*'R'9' -*',-1),-' .90.+9' +.> 9 9 0' 3) >' 9 3*)9)' >9 90*)0D' C-*' *8*' -*'+(0 ;*0'C*)*' '0*,1)*.'3) >' -*' ()*01>(1 10' 9 W 0 ;* '+.'>+;9,9 10' ((09 9 ' 3'(*)0 0' 3' -90'.*0,)9(W 9 '! ?1' -*9)'.**.0'C9;;' *'.+@'?*')*>*>?*)*.'+<+9 0' -*>D C-* 6F'*8*)@' *' -+' *I+; * -' -9>0*;3 0-+;;'?*' H'+?+0*.' + .'-*'C- '-1>?;* -'/Q9>0*;3 0-+;;'?*'*I+; *. R' *'10' -* ' '3 ;; C' -+'C-9,-'90' () 1.' 0*;390-' >+;9W ,9 10' 0;+ .*) 10' + .' C9,P*.D - 1<-' -*' *I+>(;*' ?*' <98* '?@'*>9 * 'N+ .'.90 9 <190-*.')'+,, >(;90-*.'(*)W 0 0'D ?1';*' 10'?*' F'3 ;; C*)0' 3' .' +0' .*+)',-9;.)* ' F' + .' C+;P' 9 ' ; 8* R' +3 *)' -*'*I+>(;*' 3' 1)').' + .' 01,-'+0' -+8*' > 0',; 0*;@' >9 + *.' -9>!3)'-*' C- ' -10' -+?9 1+;;@F' . *-'< .'90' 3' .DR' + .'-*' H' -+'. *-' 0'*89;'-+ -' '0** ')'P C' .R' C-+*8*)' -90' 9 0')'<93 0' >+@?*' *' 0- 1;.' -*)*3)*' 9,*' - 0*'H'C- ' H'?@'C*;;N. 9 <'-+8*'(1' '09;* ,*' -*9<)+ ,*' 3'3 ;90-' F' >* R' + .'C- '-+8*' < .' H')*( ) ' 3' -*')1 -'9 0*;3 R' + .' 3'9 0' > 0'3+9 -31;' + .' i*+; 10'3)9* .0! 3)'?@' +00 W ,9+ 9 <'C9 -'01,-' -)90 9+ 0' + .' , (@9 <' -*9)'*I+>('*' C*' 0-+;;' -+8*' (*+,*'C9 -9 '+ .';98*'+' (*+,*'C9 -' -*')*W -)* ' -10' 1)', >>1 9,+9 0' C9 -' -*').0' (* (;*' '*+) -' C9;;' ?*' 8*)@' (;*+0+ '+ .'C*'0-+;;'+' ;* < -'?*' K' 1>?*)*.'C9 -' -*>'9 '<;)@'*8*);+0 9 <6

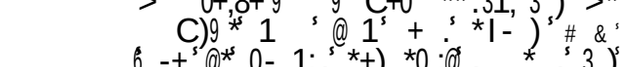
M' - E

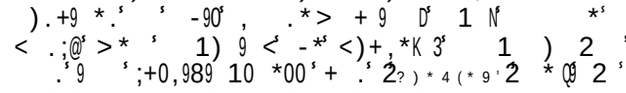


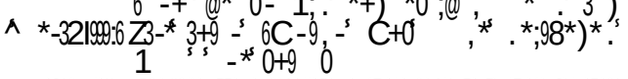


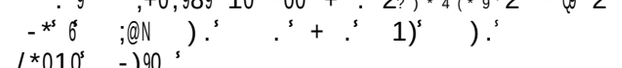


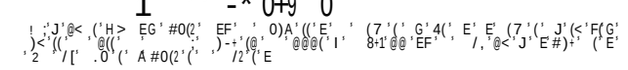


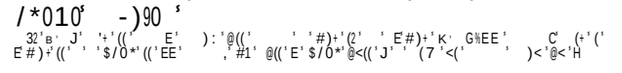


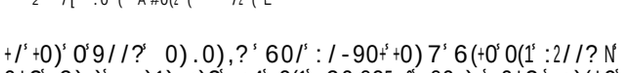


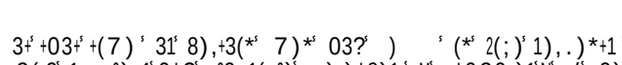


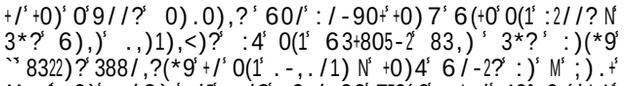


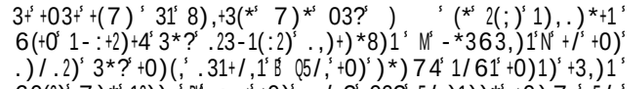


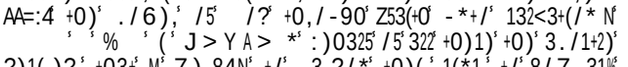


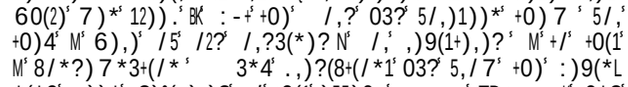


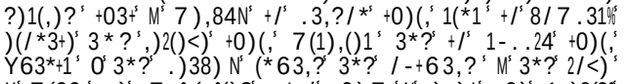


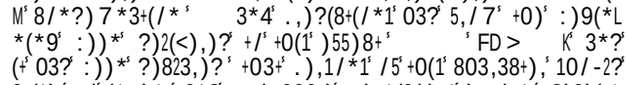


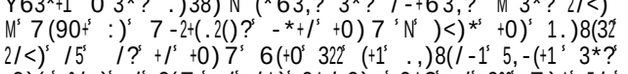


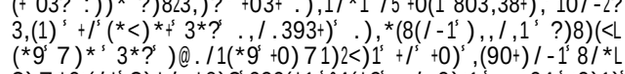


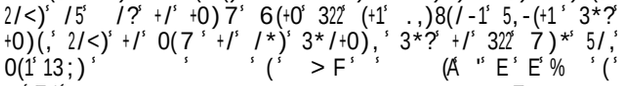


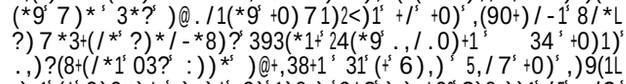


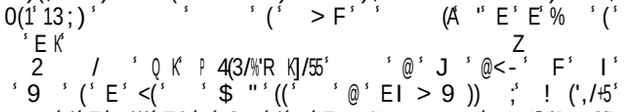


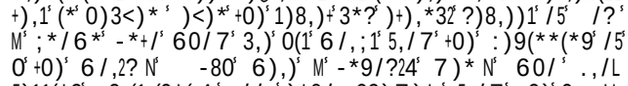


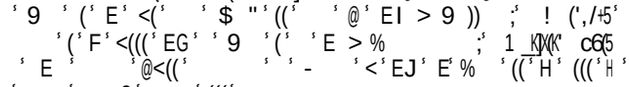


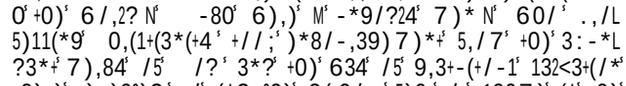


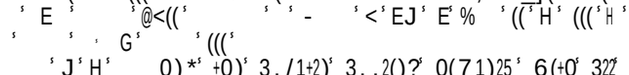


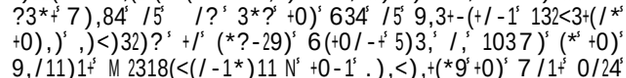


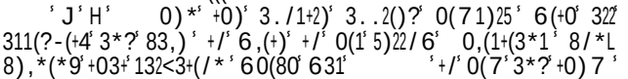


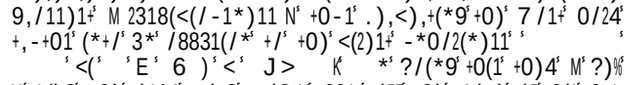


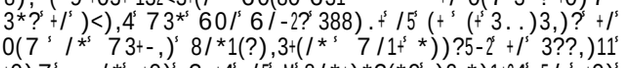


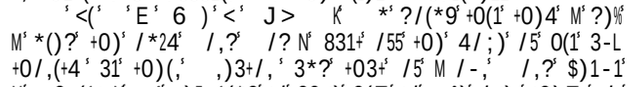


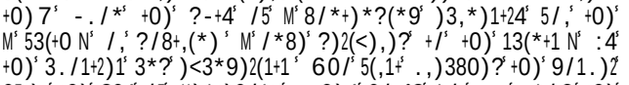


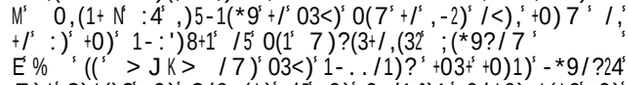


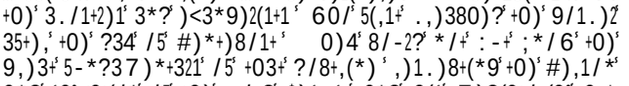


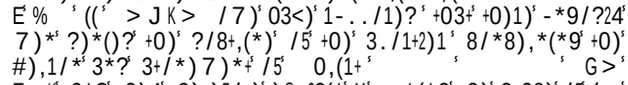


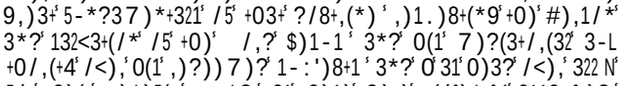


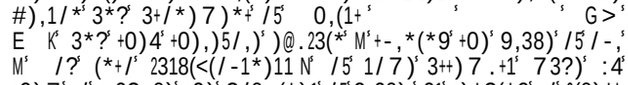


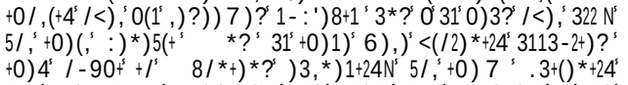


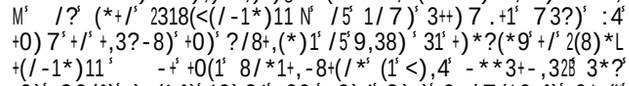


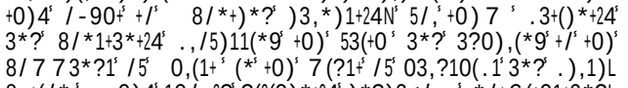


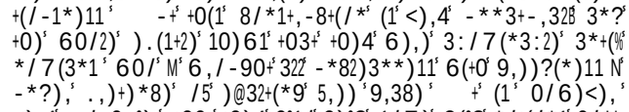


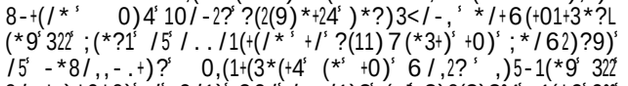


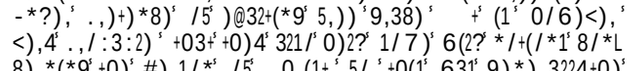


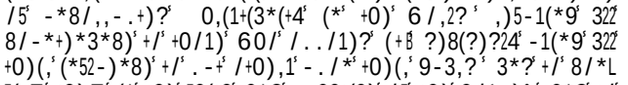


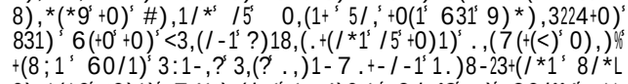


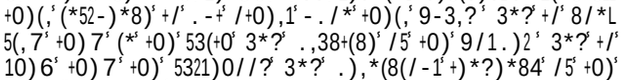


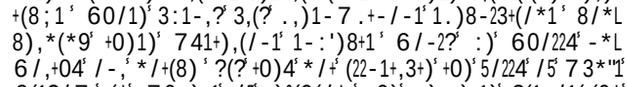


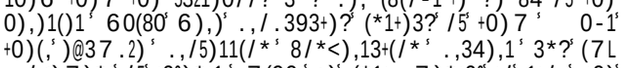


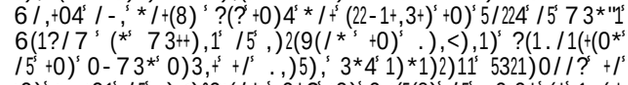


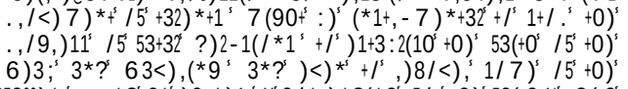


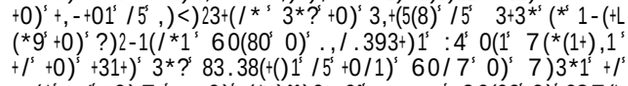


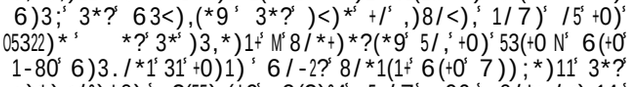


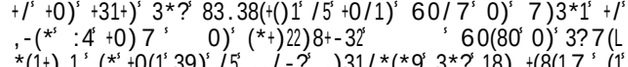


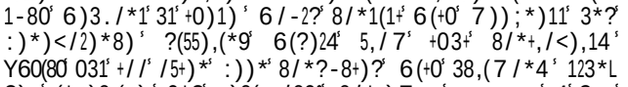


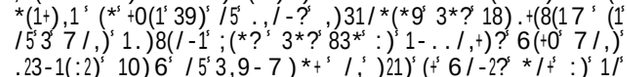


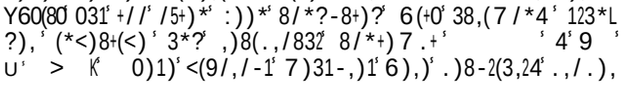


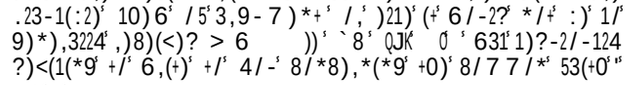


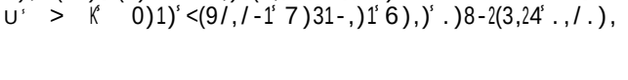


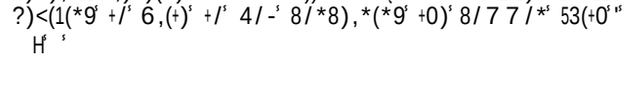


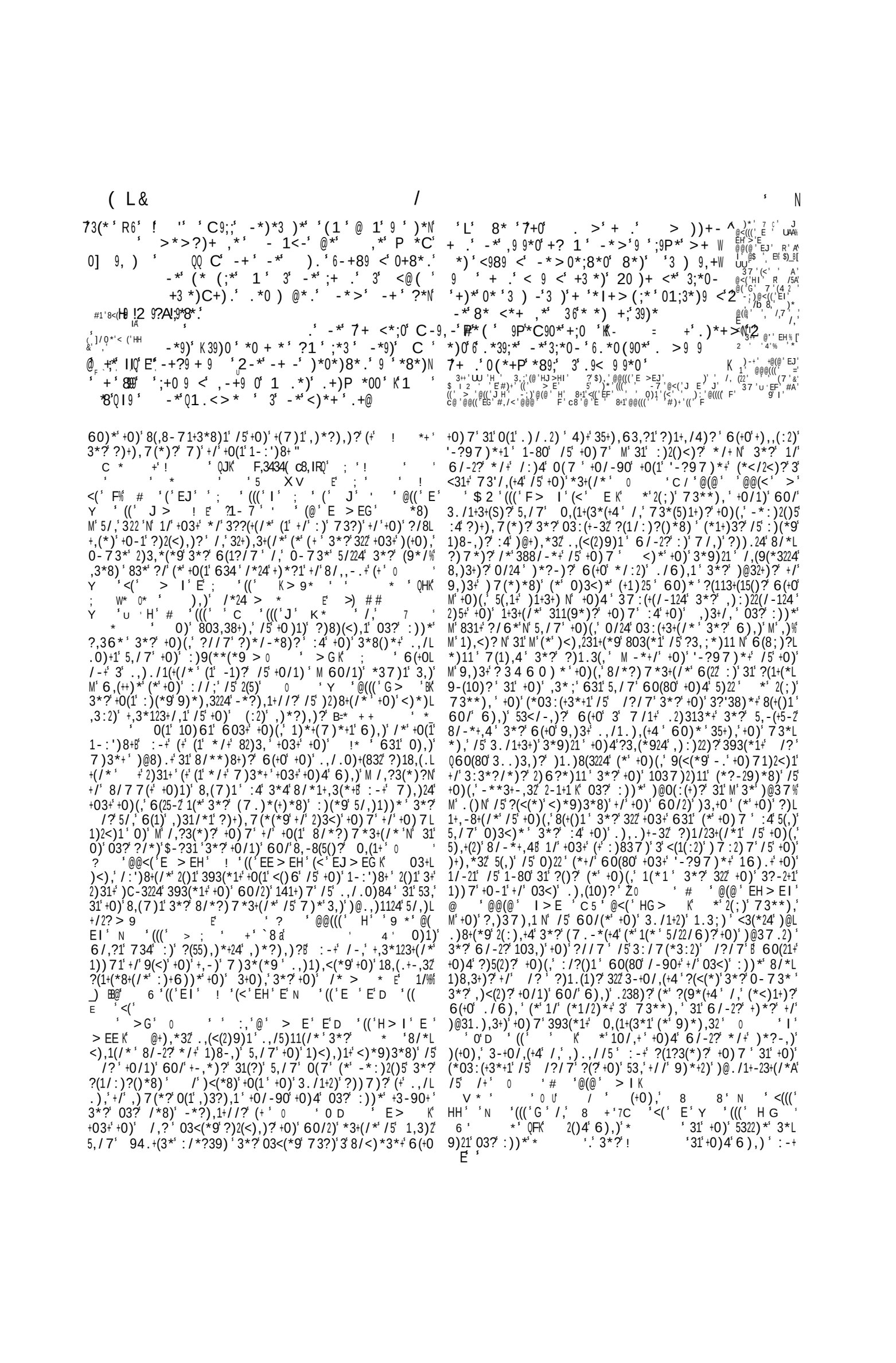


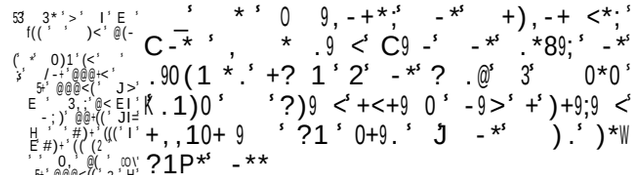


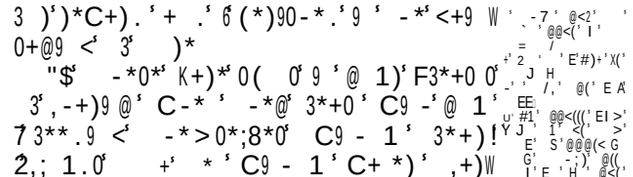










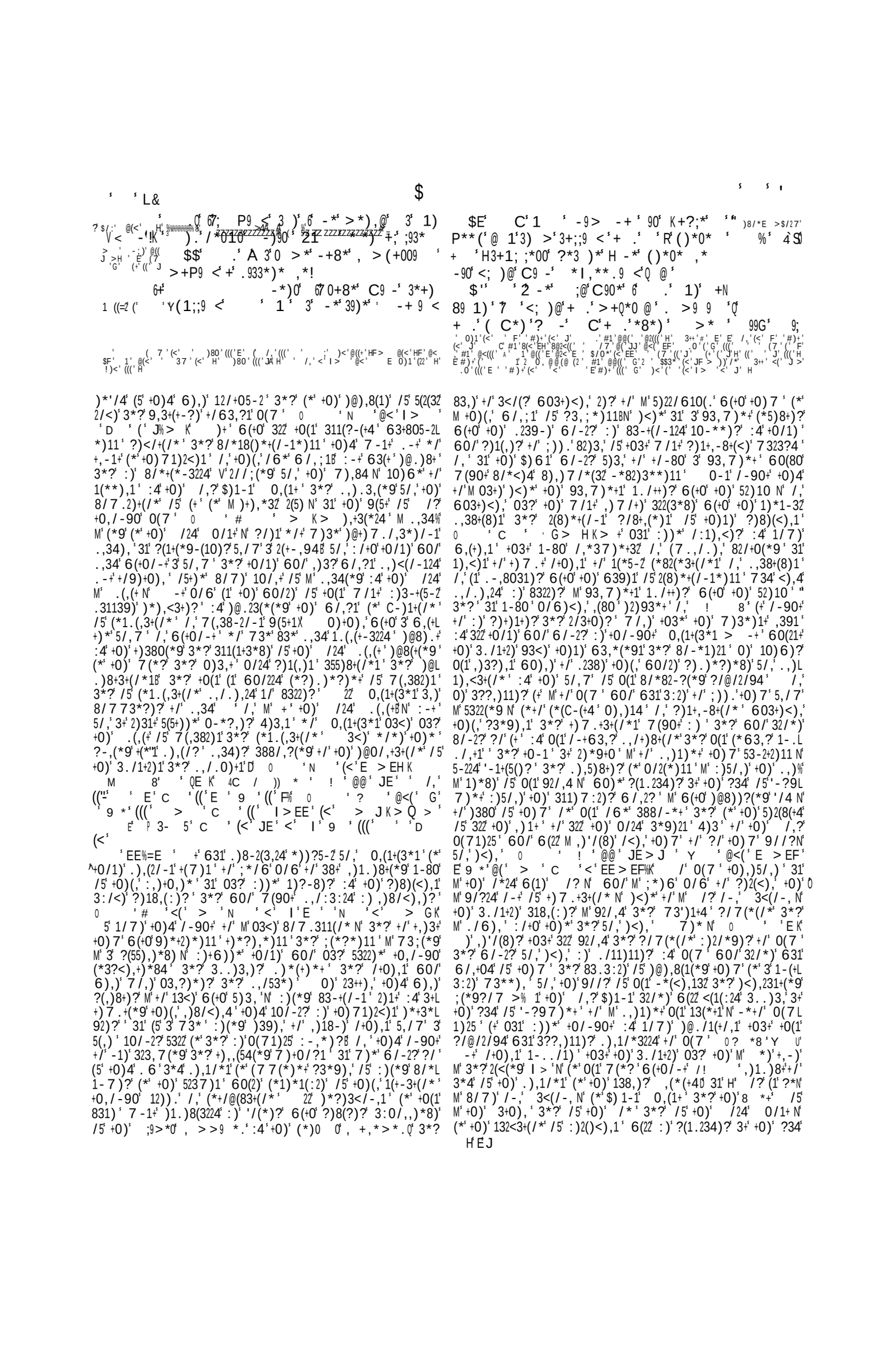


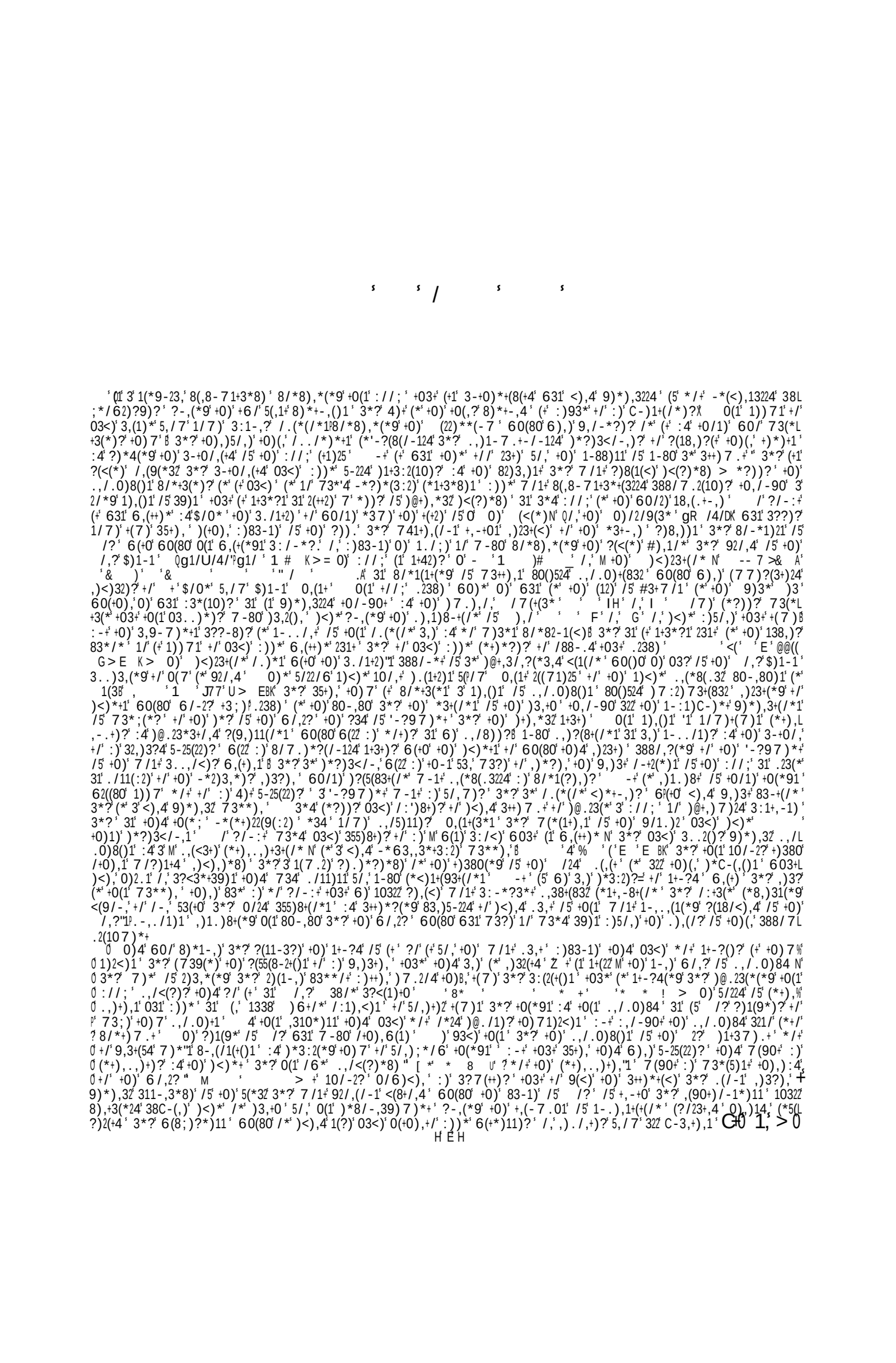
+0)' 73(*' (*1+3*8)' /5' +0(1' ,):)22(/*' (*' +0)' (*03:(+3*+1' /5' /?/7 ' 3*?' (*' +0)' 0),)+28;1' 60/7' $-?)' /..1)?' 631' 1-80' 31')<(?' 1.(,(+1' 8/-2?' */+' 8/773(+ >)'H C' -) / ' ' '@@<'DB' '* '@@@(((' H' ' UU 'H >H ' '(@'HJ> K' +' ?/)1' */+' 3..)3,' (*' 603+' 1)*1)' +0)' 5(,)' 60(80' ?)1+,/4)?' /?/7 ' 3*?' +0)*' 631' 60/224')@+(*9-(10)?' 3*?' 1-88))?)?' :4' 3' 23;)' 8/-2?' :)' +0-1' 8322)?' 3.3,+' 5,/7' (+1')55)8+1' /*' +0)' (*03:(+3*+1' Q)+K'@(@'JK>Z 'QGK' <5*,6RD/')</Q' 0#),5)8+24' 0' 1+-.(5()?' 3*?' ?)1+(+-+)' /5',)31/*' 31'(5' +0)(,'1)*1)1'03?' A:))*'2/8;)?' -.' :4'3'?))'.' 12)).'/,'3*'(*<)+),3+)'2)+03,94' 0'5,/7' 60(80' */' +),,(:2)')@37.2)' 8/-2?' 363;)' +0)7 " Q E >=0)').(+0)+'/) #' 3??)?' (*' /-,'+,3*123+(/*' (7L .2()1'+03+'+0)(,'<),4'?,)3711'6),)'?)5(2)?'+0,/-90'+0)'5(2+0(L *)11'/5'+0)(,'63;(*9'+0/-90+1

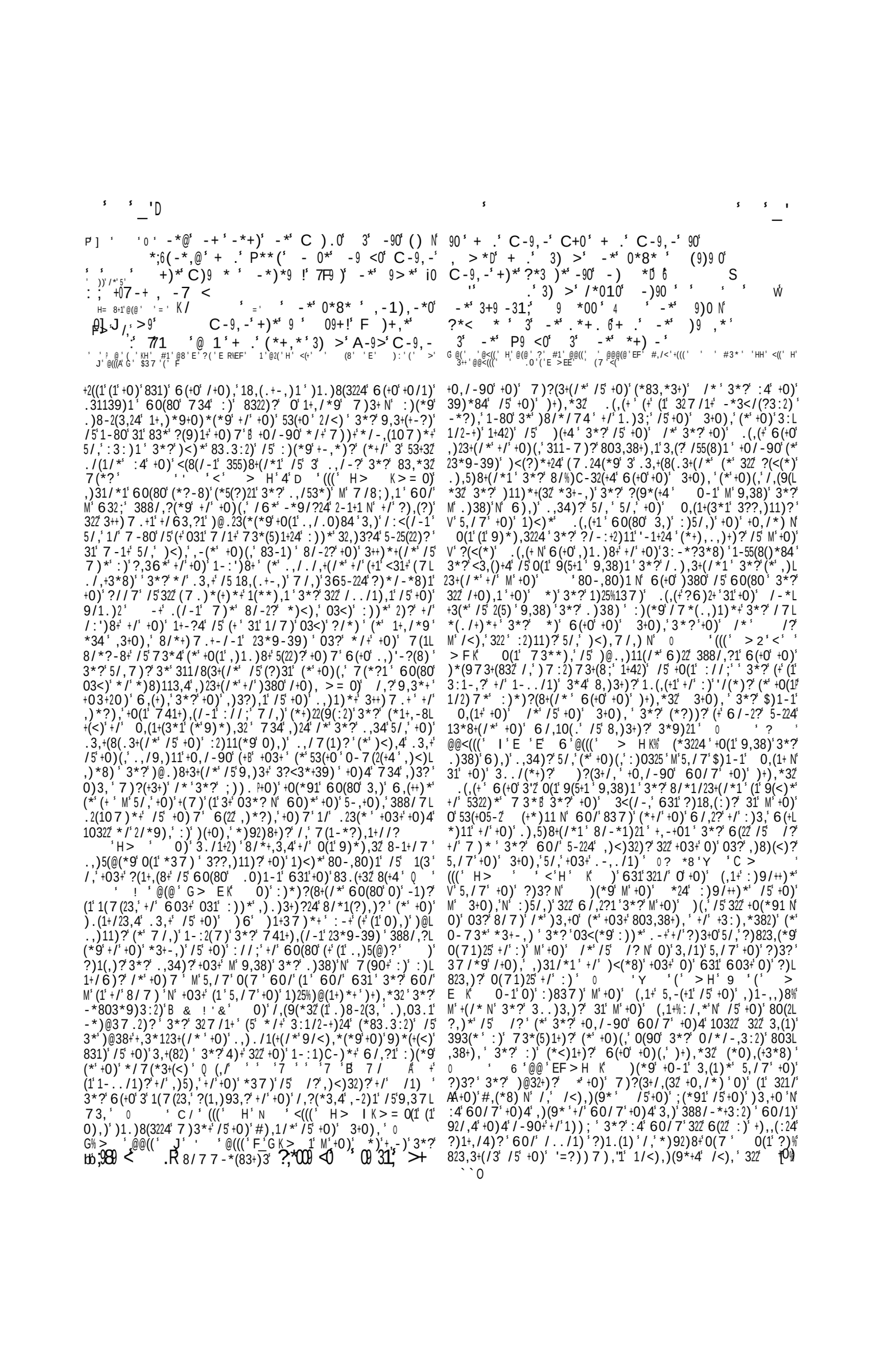
'I' ' '4' % '((' > FK' +'(1' 7/1+' .,/L :3:2)' +03+' +0)' 3./1+2)' +//;' +0(1' 388/-*+' 8/*8),*(*9' (803)2' 5,/7' 3*' 3*8()*+',3?(+(/*' 60(80' 631' 6)22';*/6*' 37/*9' +0)' $)61' 3*?' :4' +0-1' 3??-8(*9'(+' 0)' 031' 9(<)*' 3*' 3++)1+3+(/*' +/' (+1',-+0' 'Z & '@@@(<' 'Z ' >' > H'E 'E ' @((' K *' 3*(0)2' (803)2' 031' :))*' 1-../1)?' +/':)' +0)' /*' /5' /?' 0(71)25' 31' +0)' 9,)3+' -2),' /<),'322' 3*9)21' 3*?' 6/,10(..)?' :4' +0)7'322')+' 6)'?/' */+' 1))7' 3-+0/,(S)?' +/' (*+),.,)+' +0(1' +)@+' /5' +0)' /*' /5' /?'31' 1./;)*' /5'(*' +0)' +,3?(+(/*' :4' +0)' *37)' /5' (803)2' :-+' ,3+0),' /5'1/7)' 8,)3+)?' 3*9)2' (*<)1+)?' 6(+0' 9,)3+' 3-L +0/,(+4' /<),' 0(1' 5)22/61' .),03.1'31')11(30"1' .)8-2(3,'<(8)L 9),)*+' ' - '(<' J> GK>=0(1').2+)?' 3,80L 3*9)2' 0/6)<),' 03?' 3' 8/*+)1+' 6(+0' +0)' ?)<(?' 3:/-+' +0)' :/?4'/5' /1)1' +' 734' :)' 1-../1)?' +03+' 3+3*' 3(7)?' +/' 73;)' +0)' .238)' 05' 0(1' :-,(32' ;*/6*' +/' +0)' 1,3)2(+)1' (*' /,?),' +/' +)7.+' +0)7' +/' 6/,10(.' 0(7' 31' +0)' .3.(1+1' ?/' +0)' :/?()1' /5' 73,+4,1' ,)32' /,' 1-../1)?8' :-+' (803)2' 6/-2?' */+' 1-55),' 0(7'+/' ?/' (+' 3*?' ./:3:24'+0)' ?)<(?')@L .,)11)?' 0(1' ,39)' (*' ?)1.),3+)' :231.0)74')+' (803)2' M ?-,1+' */+' :,(*9' 393(*1+' 0(7' 3' ,3(2(*9' 388-13+(/* N' 0)' ?(?'*/+'.,)1-7)'+/')*/-*8)'/*' 0(7'+0)''-?97)*+'/5':231L .0)74' /,'+/',)+/,+' 0(1',)<(2(*91' :-+' 7),)24' 13(?'+/' 0(7' M' 0)' ; <*' ,):-;)'+0))N' S ' (((' EK' 0/-90'+0)' 03+)5-2' 803,38+),' 3*?' 3+,/8(/-1' 8/*?-8+' /5' +0)' ?)<(?' 7-1+' 03<)')@8(+)?' +0)' 0/24' 3:0/,,)*8)' 3*?' (*?(9*3+(/*' /5' +0)' 3,80%3*9)2' 0)' 4)+' */+'+/' -++),' 3*4',)<(2(*9')@L .,)11(/*' */+'5,/7'5)3,'/5'+0)' ?)<(2' :-+':)83-1)')<)*' (*' +0/1)' 8(,8-71+3*8)1' (+' 6/-2?' */+' 03<)' :))*' 8/*1(1+)*+' 6(+0'+0)'.),5)8+(/*'/5'0(1'803,38+),=')+'+0)'0),)+(8;1'/5

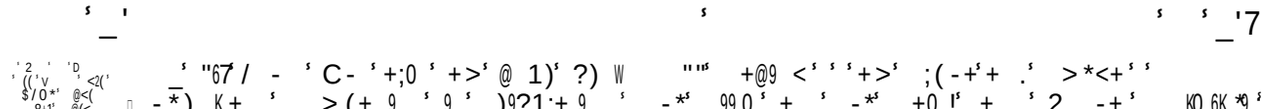
60/7'$-?)'631'1.)3;(*9'823(7)?'1-.),(/,')7(*)*8)'31' +0)'53</-,(+)1'/5'0)3<)*'3*?' * '+/'M'1.)3;')<(?'/5'?(9% 0'*(+()1N'60/7' /?'03?'8/773*?)?'+0)7'+/'0/*/-,'3*?' /:)4' 0-1'+0)4'1./;)'23*9-39)'8/*8),*(*9',.(*8)1'3*?' ,-2),1'60(80' (803)2'18,-.2)?'+/' -1)'8/*8),*(*9'+0)' ?)<(?'0(71)25'3*?'1-,)24'+0)4'6/-2?'*/+'73(*+3(*'+03+' +0)4'6),)'7/,)'.,(<(2)9)?'+03*'+0)'3,80%3*9)2X /,'+03+' +0)(,',-2),1'6),)'7/,)'(@)8,3:2)'+03*'+03+'+03+'9,)3+')*)74'/5' /?3*?'73*X -+'(*?))?'+0)4'M'1.3;)')<(?'/5'1-80' 0'+0(*91'31'+0)4'-*?),1+//?'*/+'B'N'5/,'+0)4'6),)'7)*'/5'+' :31)'9,/<)22(*9'7(*?'60/1)'80()5'3++)*+(/*'631'.3(?'+/' +0)'(*?-29)*8)'/5'+0)(,'3..)+(+)1'(*'1-80'+0(*91'31'M'+0)4' 0';*)6'*3+-,3224N')<)*'2(;)')'+0)':,-+)1'3*?':4'+0)(,')@L 8)11(<)'3*?'2362)11'9,3+(5(83+(/*'+0)4'60/224'./22-+)?'+0)7L 1)2<)1>=/1-../1)'31'1/7)'2)3,*)?'7)*'03<)'?/*)'+03+' M'+0)':/?4'/5' /1)1N'7)3*1'+0)'$)6(10'80-,80'35+),'+0)' 83.+(<(+4B':)83-1)'+0)'+,-)'80-,80'(1'8322)?'M'+0)':/?4'/5' M' 0,(1+N'3*?'+/',)5),'+0)'60/2)'+/'+0)'+,3*138+(/*',)L 8/,?)?'(*'+0)'+0(,?'/5')803,(30'7),)24':)83-1)'M'+0)' U';<*',):-;)'+0))'3+3*N'/88-,1'+0),)'734':)'(*9)% F':-+'(+'(1'(*9)*(/-1'+,(52(*9'60(80':,(*91'*/'(*1+,-8L +(/*'*/,'13+(1538+(/*'+/'+0)'7(*?'0 'a ! '(((' >HK' >0 (803)2'/*)'/5'+0)'.,(*8(.32'3*9)21'631'8/*+)*+)?'+/' 0'?)2(<),'-.'+0)'?)<(2'0/6)<),')@)8,3:2)'+/':)'8/),8)?':4' 0'+0)'-?97)*+'/5' /?'4)+'+0)1)'.),<),1)'3*?'(*1(9*(5(% 0'83*+'7)*'6),)'*/+'3103 7)?'+/',)../380'M'+0)'./6),1' 0M /,?3(*)?':4' /?N'0(71)25X" M 5 >0)'3*9)21' 0'03<)'*/'?(1./1(+(/*'3*?':)2()<)'+0)4'03<)'*/'+32)*+'/, 0'538-2+4'5/,',3(2(*9'+0)'8//2' 8/*1(?),3+(/*' 60),)/5' 0'10/-2?'73;)'322' 7)*')1.)8(3224'+0/1)'60/'8322'+0)7% 0'1)2<)1' '3*?')1.)8(3224'(*'8/*+,/<),1()1'3:/-+',)2(% 0'9(/*'31037)?'3*?'35,3(?'/5'+0(1'73**),'/5'?(1.-+(*9 " * ';

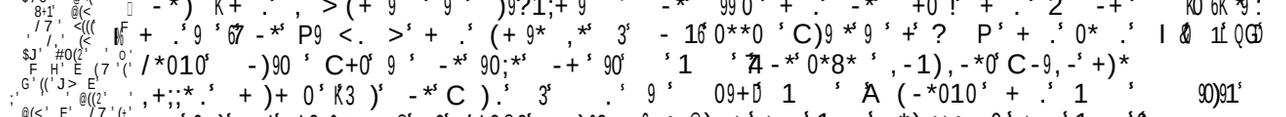
@ 'QIK' +*' * ' /,'*8 ' ! '@<((' F'@(@'I'UU'FA @@(<'E >@ * A' $ .7 'E'9*'@' $' "$ XM* 8' '* 8' !! A' ' ; + '2- W*7' ' * 8' '= 8 ' ' +G * +'="&B' W* 8' * ! 8'Y '('E EF'E'D '((' E' 8'# (<' G'C '((' J'E'D '('H ' > J' 0)'3./1+2)')*/-*8)?'3'?,)3?5-2'6/)'-./*' +0)1)')8)(<),1B 5/,'+0)4'03?'M9/*)'(*' +0)'634'/5' 3(* N' 60/'.,/-?24'?(12(;(*9'+0)'0-7:2)'/:)?()*8)'/553(+0'3*?' +0)'1.(,(+-32'6/,10(.'60(80' /?'03?'3../(*+)?'53(2)?'/5' 5(*?(*9'388).+3*8)'6(+0'0(7'3*?':)(*9')*,39)?':4'+0(1' 0)'7-,?),)?'0(1',(90+)/-1':,/+0),'3*?'3./1+3+(S)?'5,/7 D-0

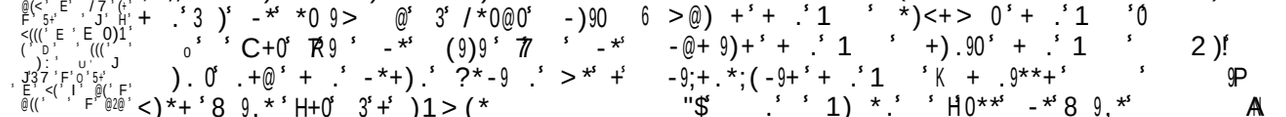


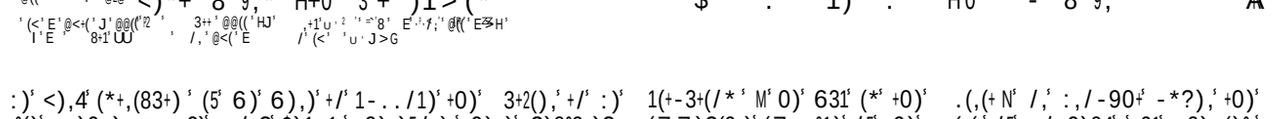


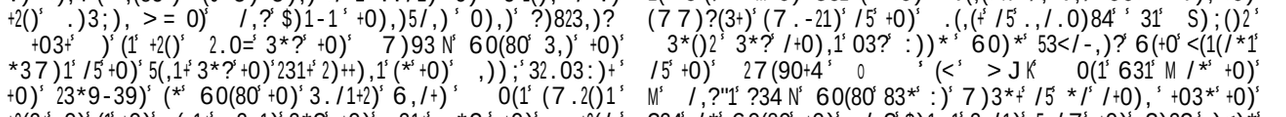


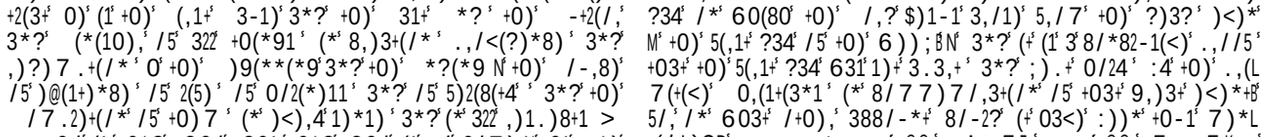


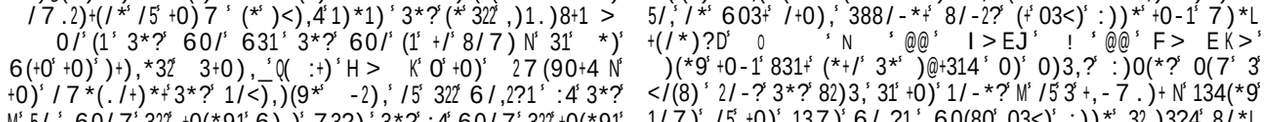


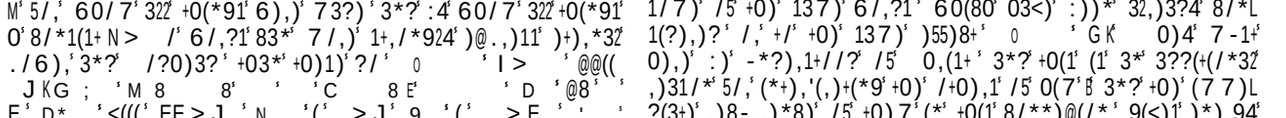


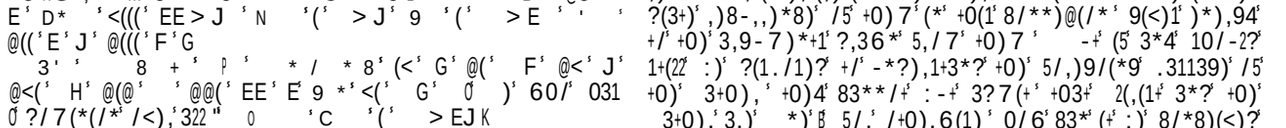


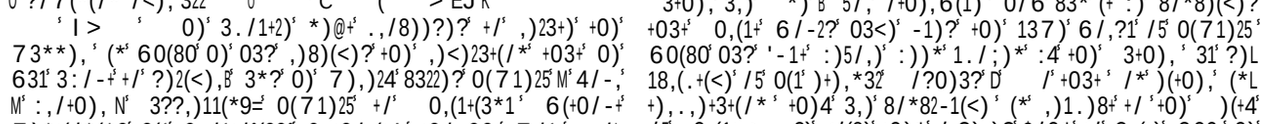


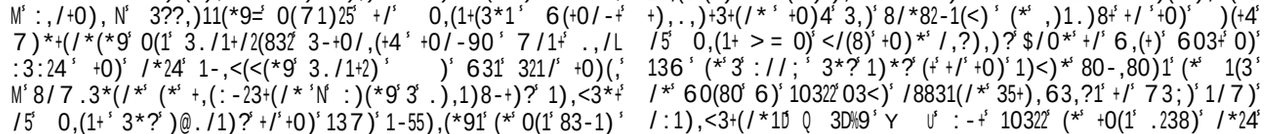


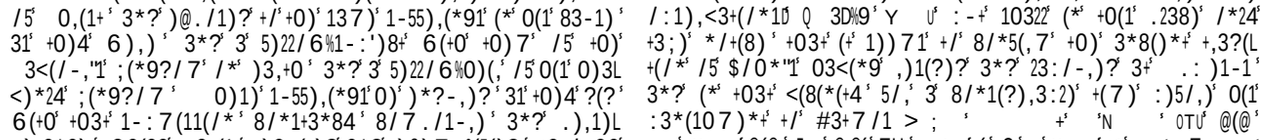


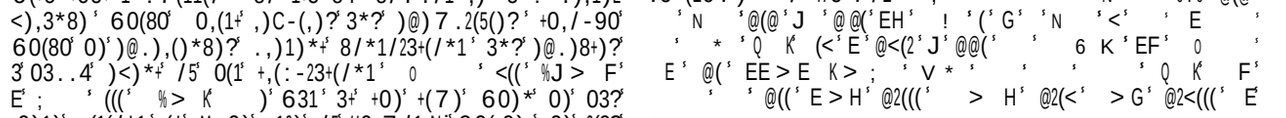


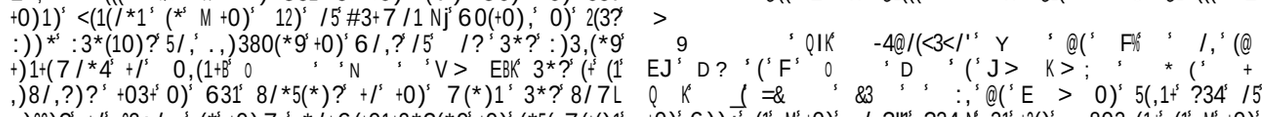


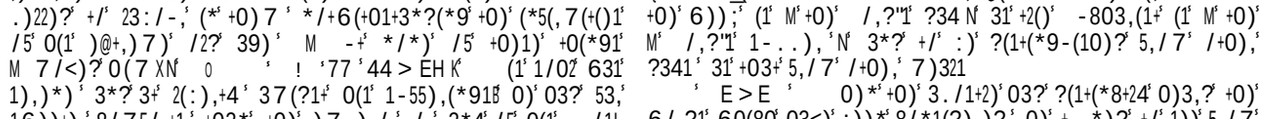


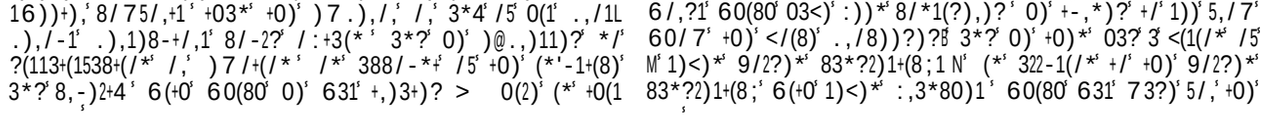


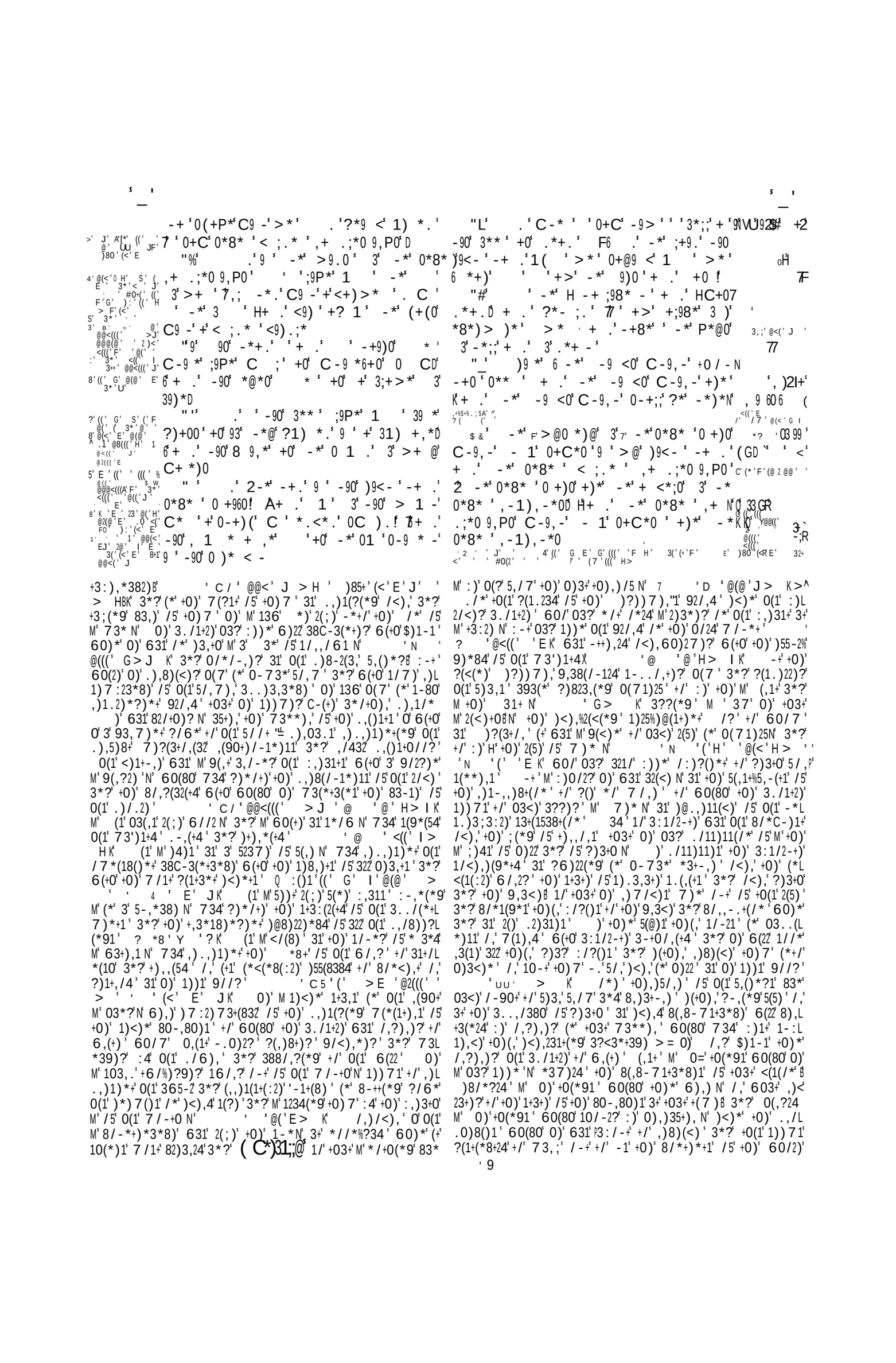


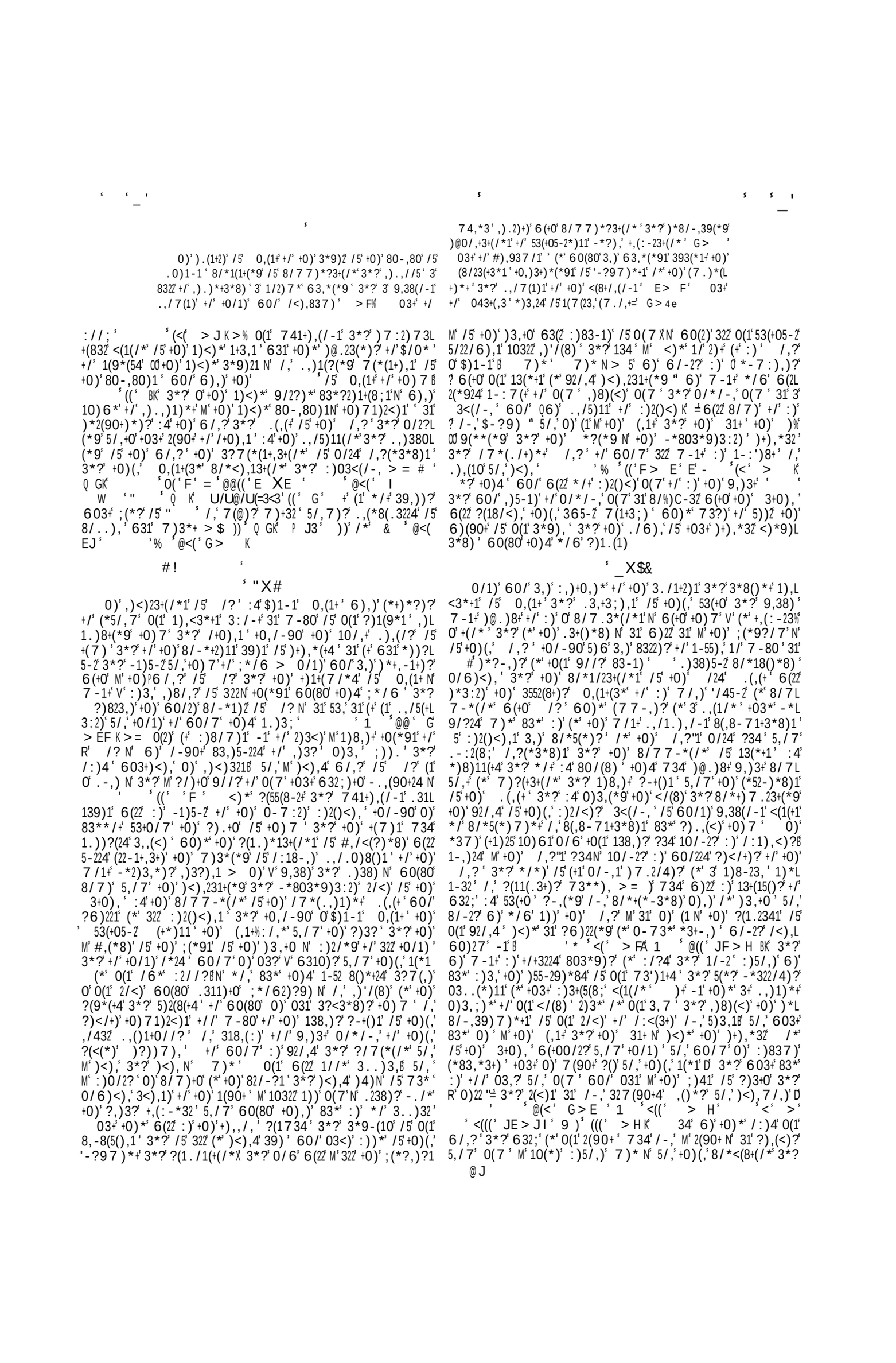


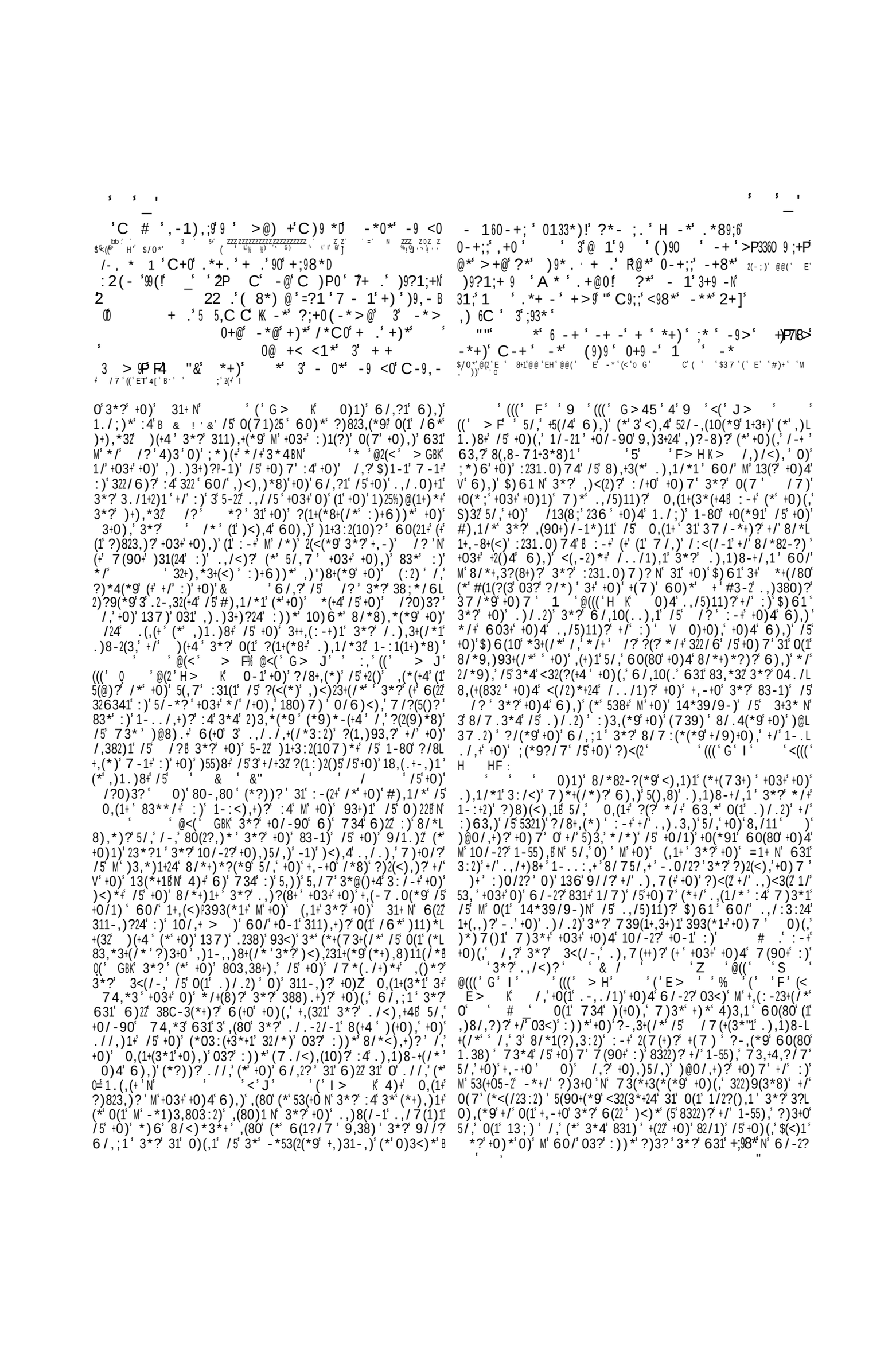


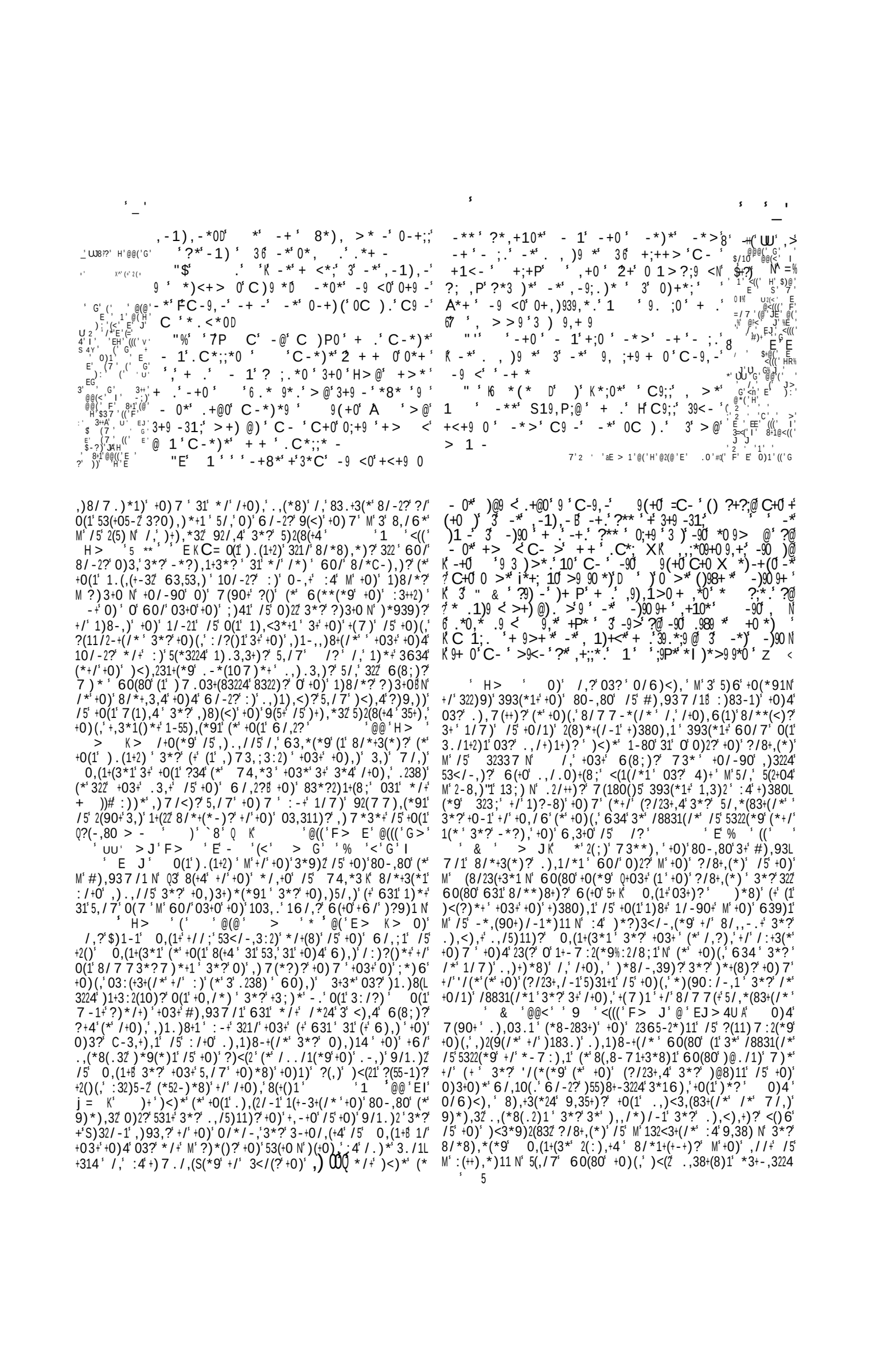


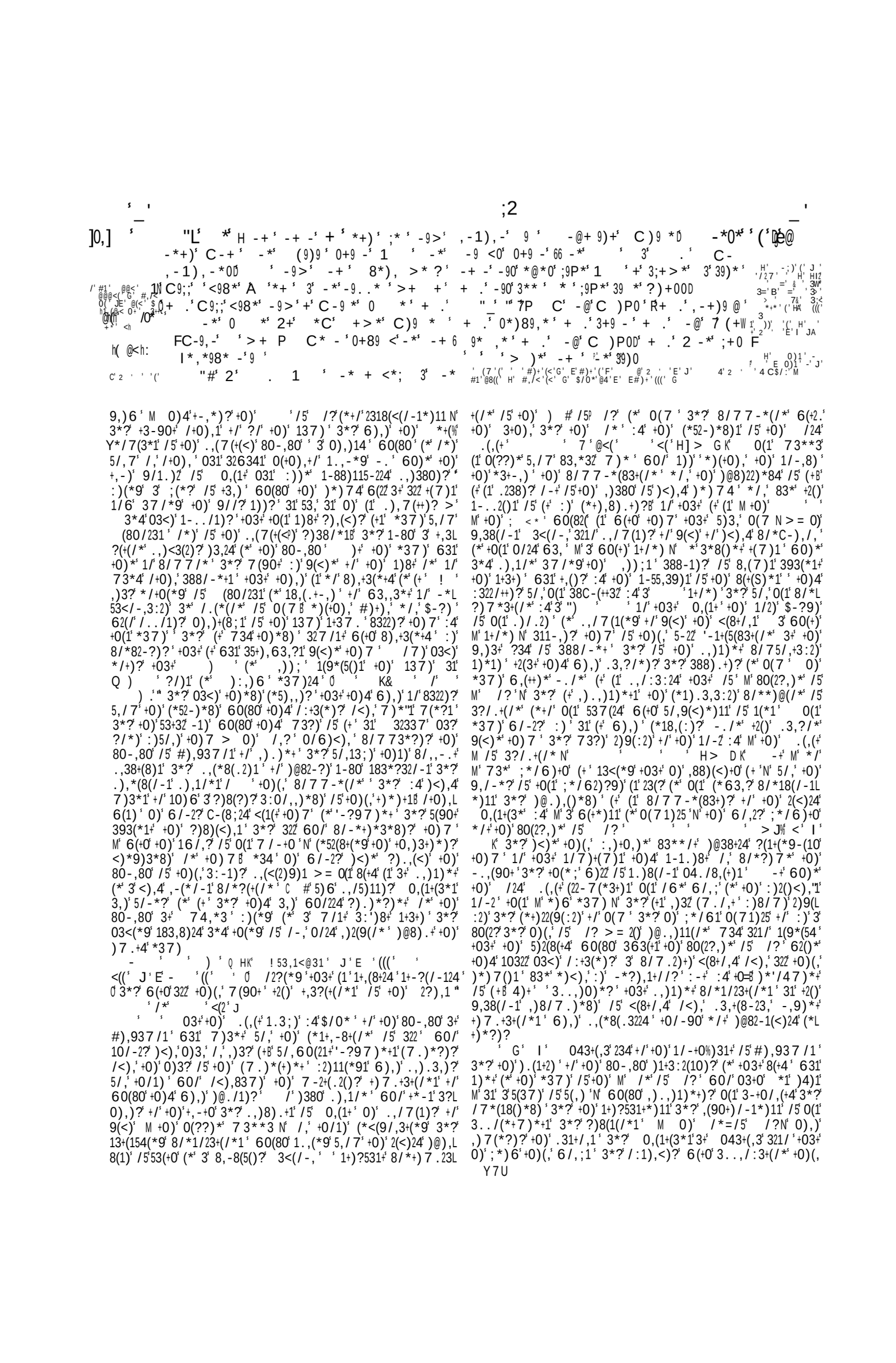


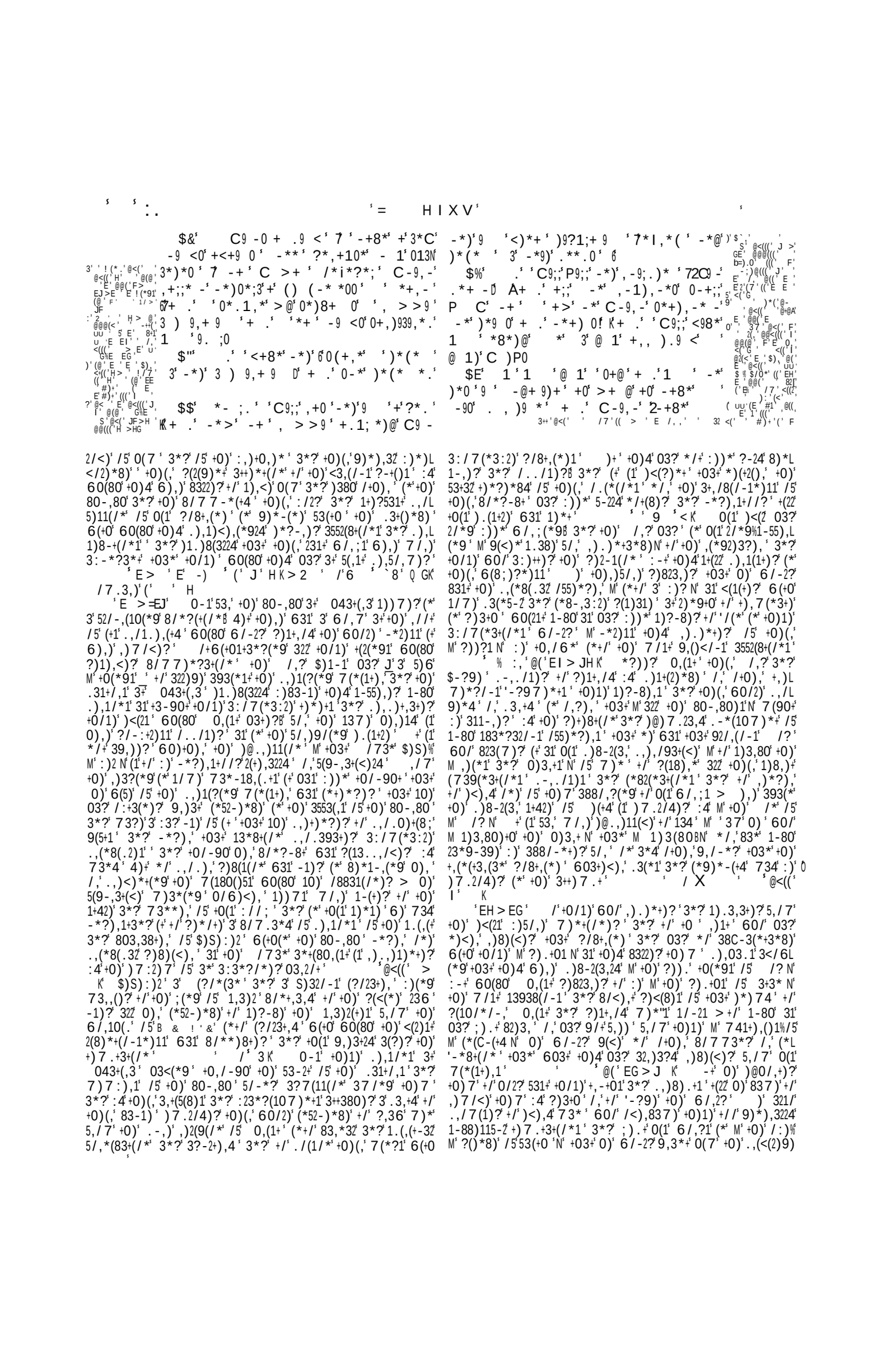


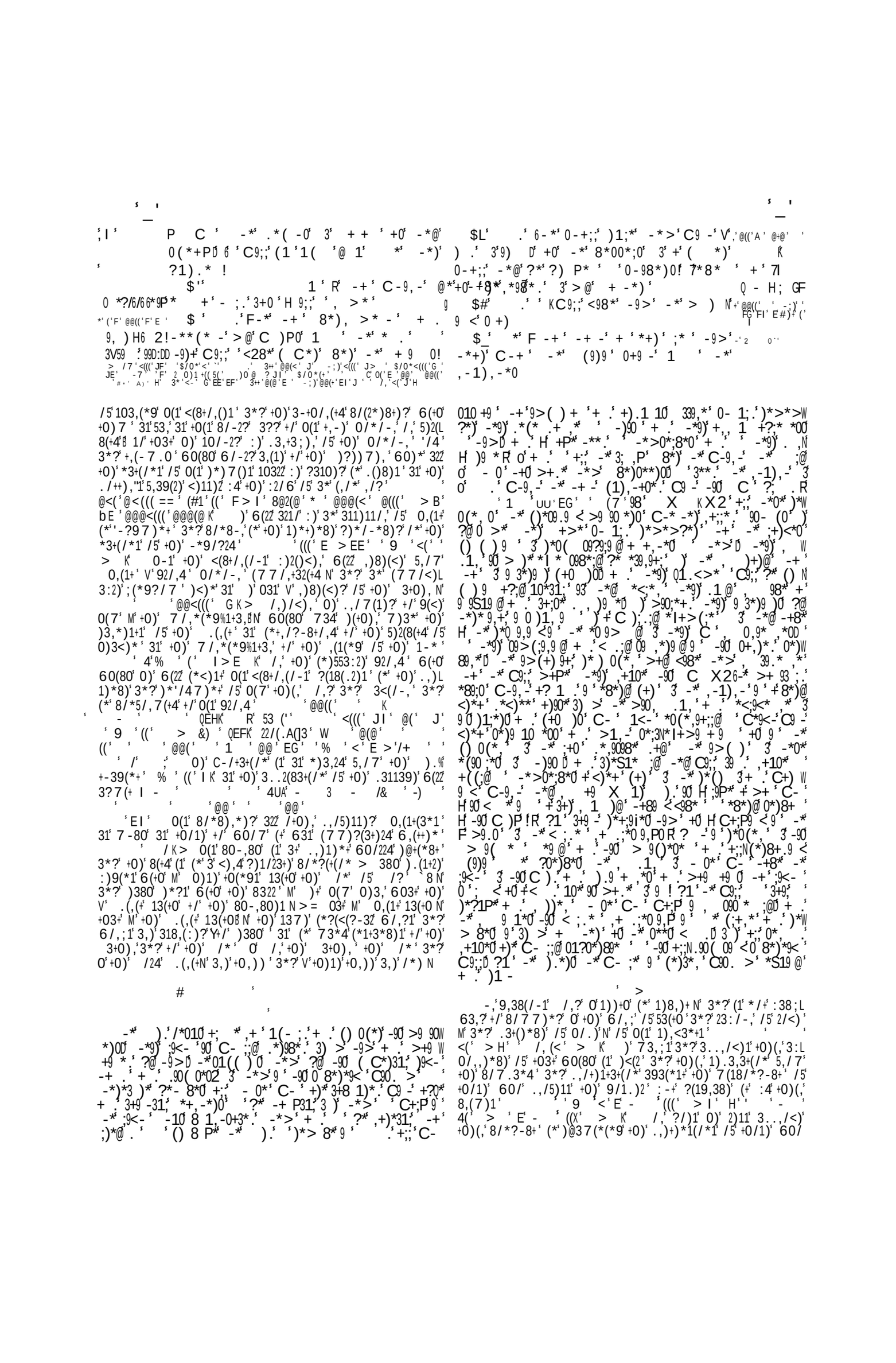


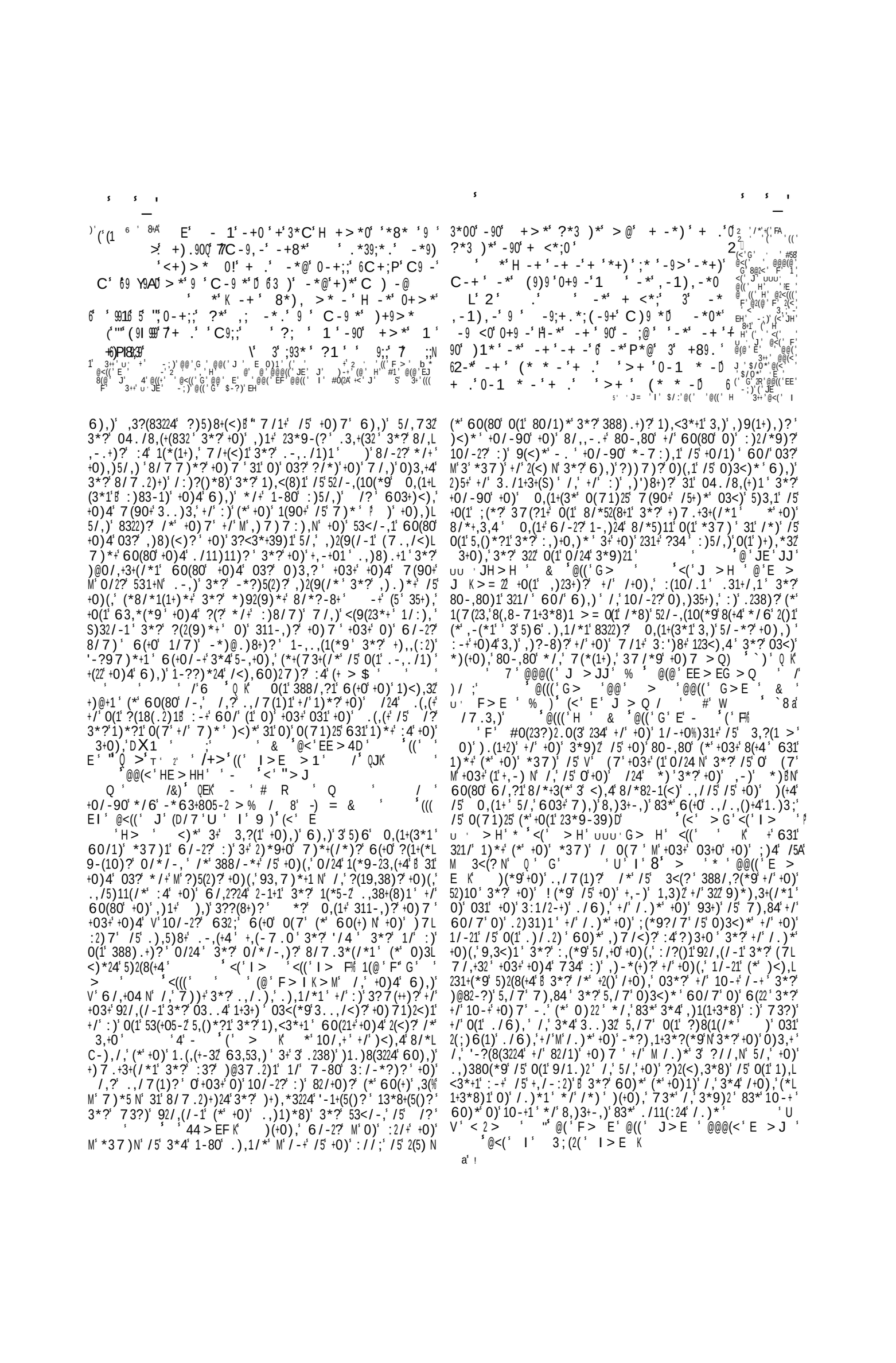


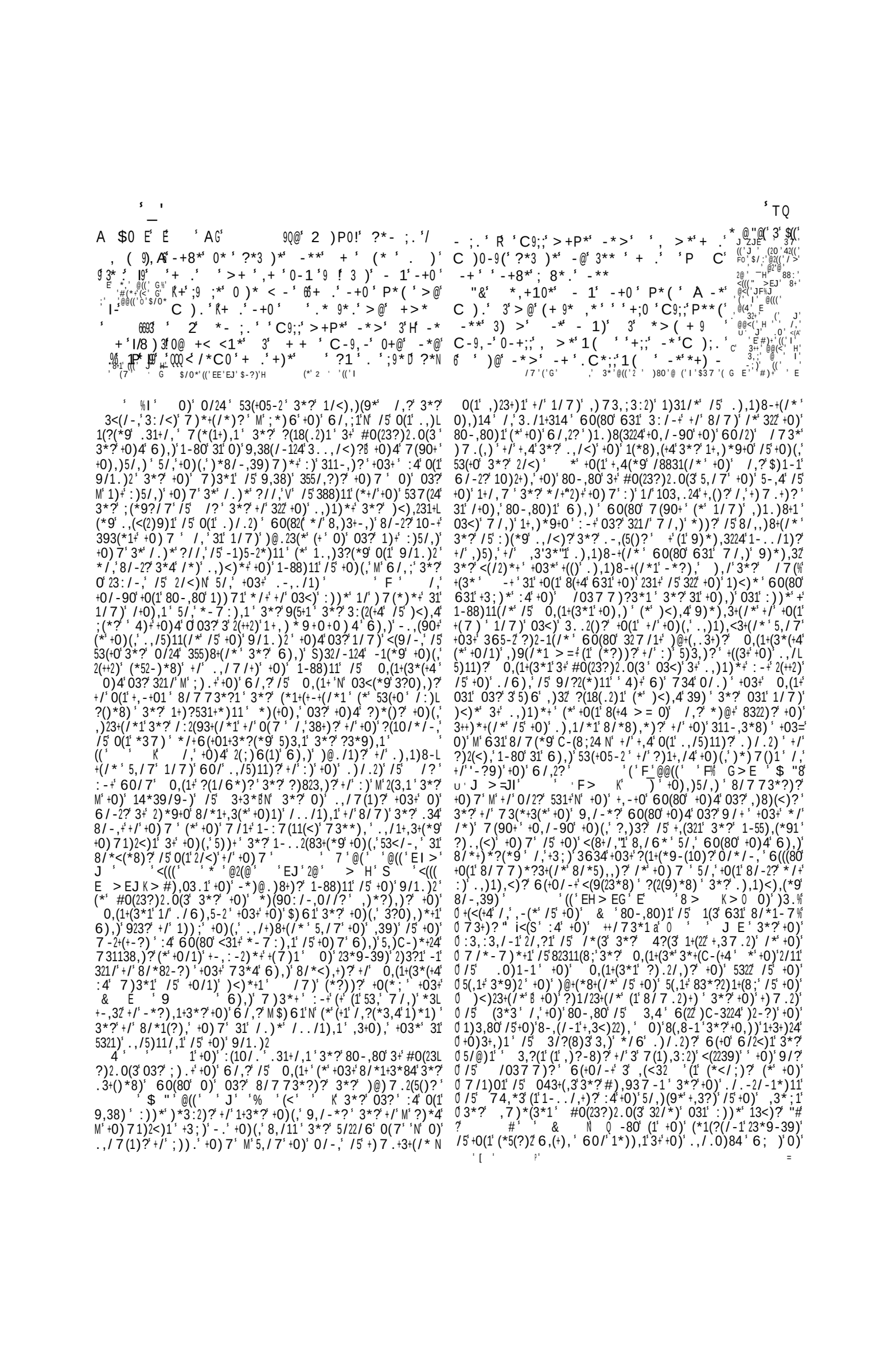


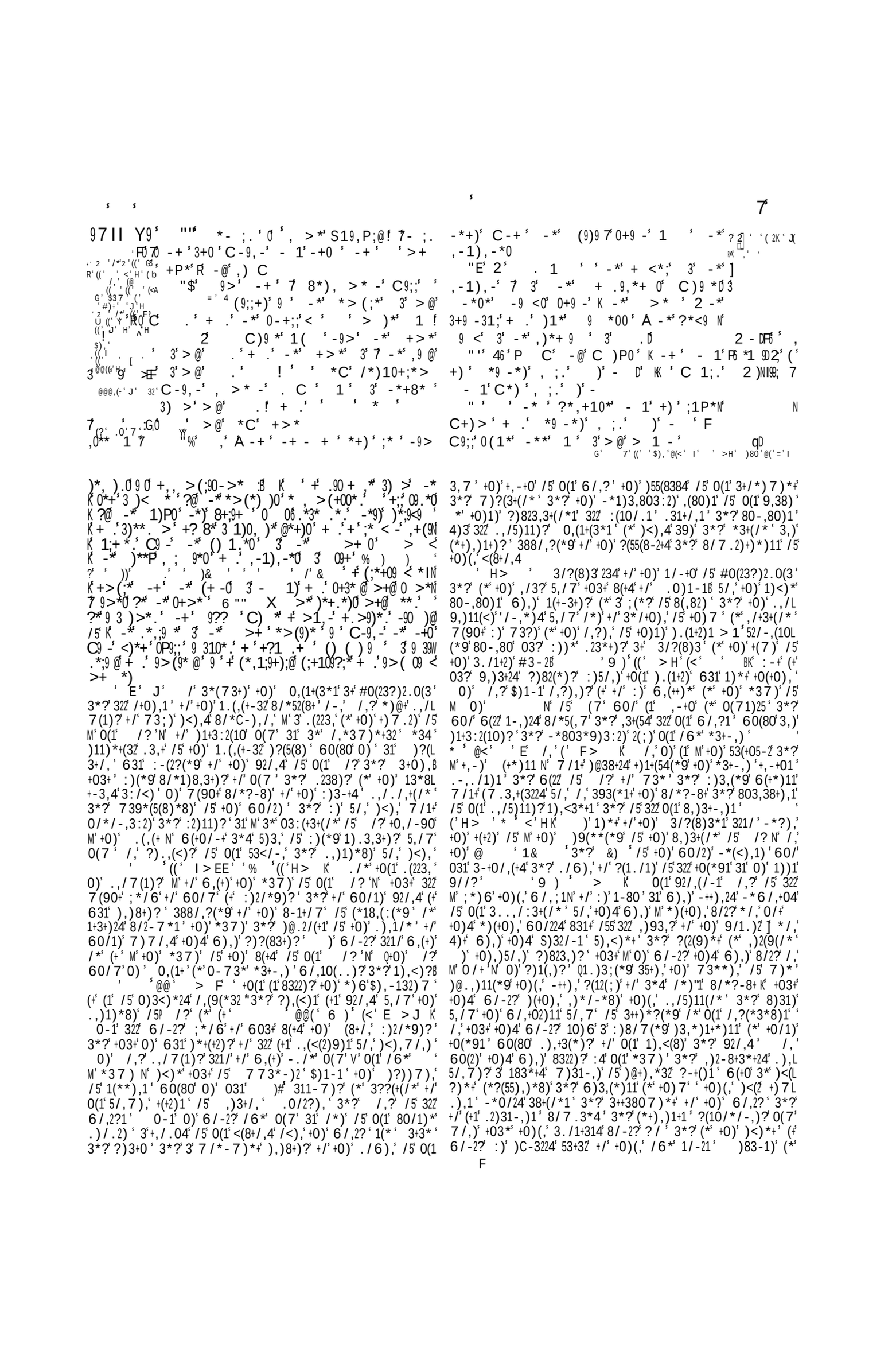


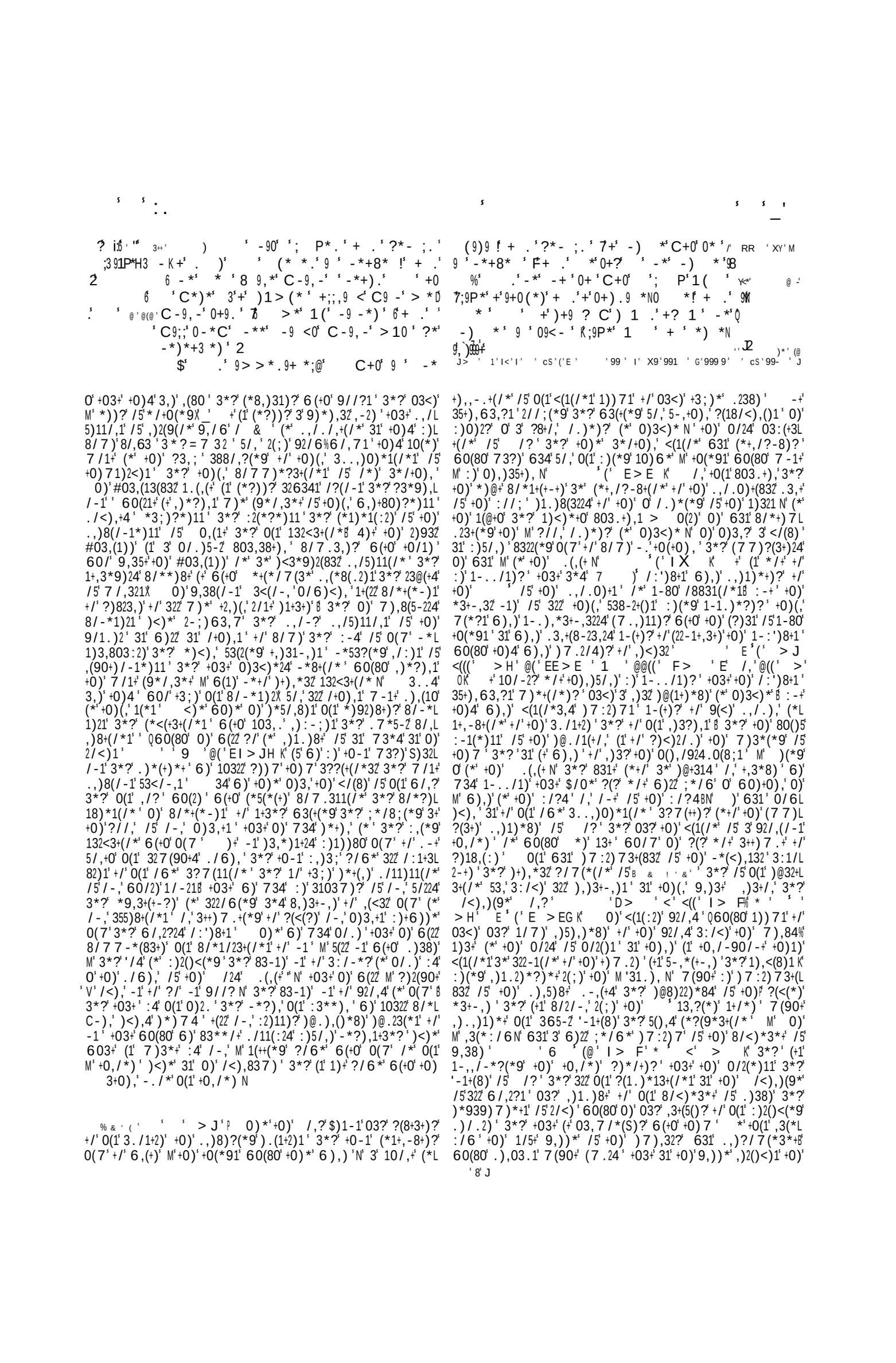


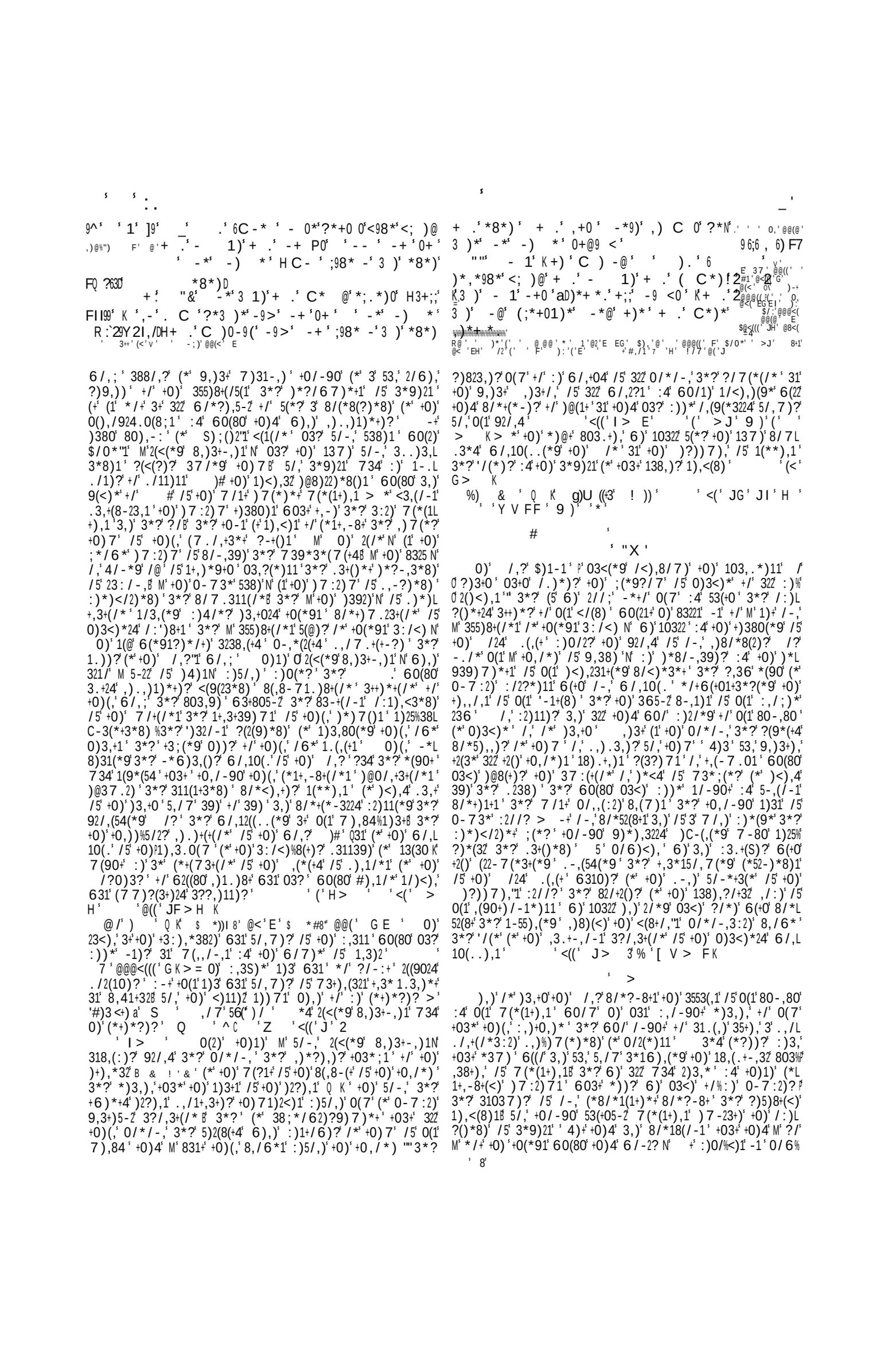


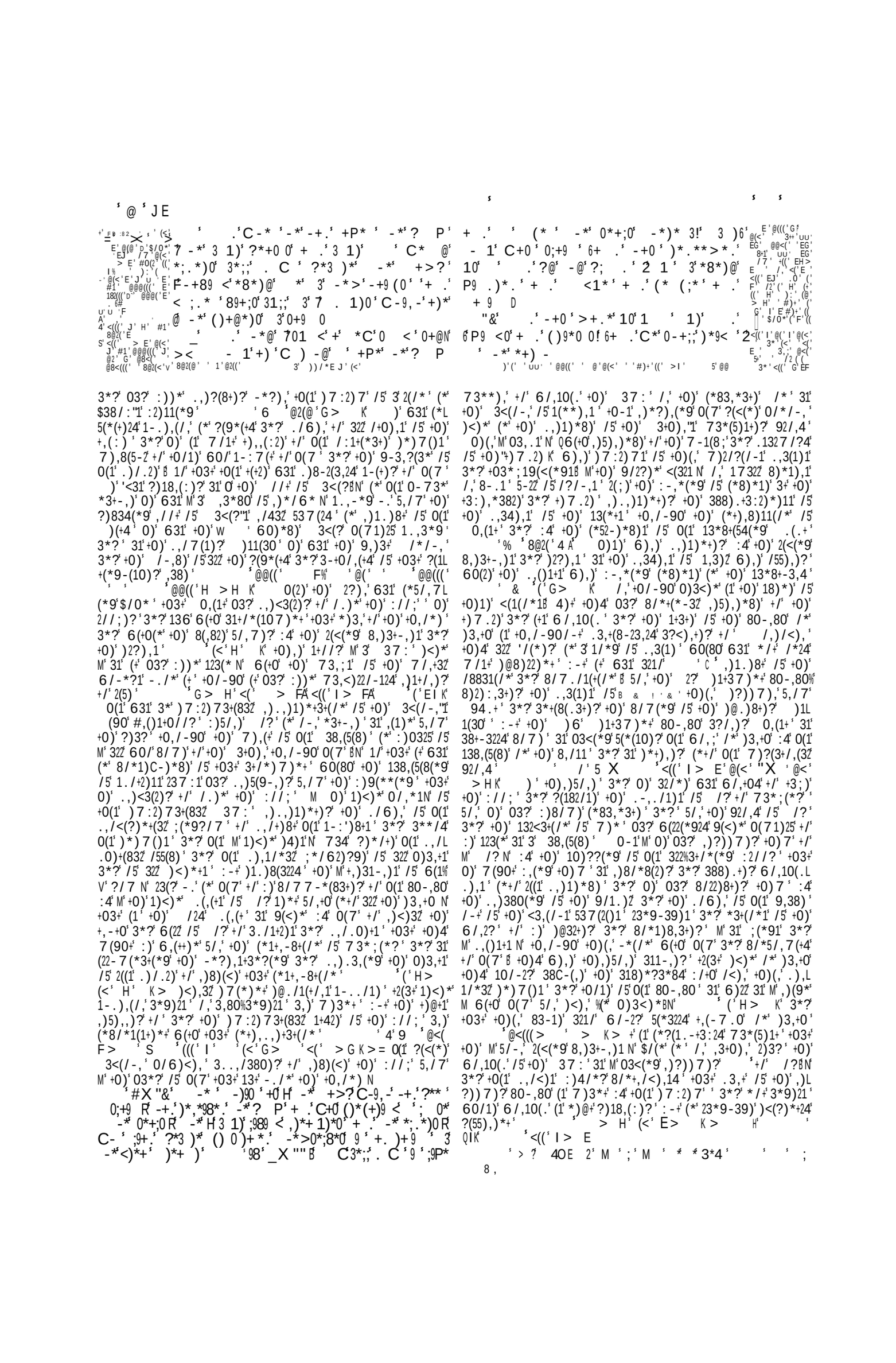


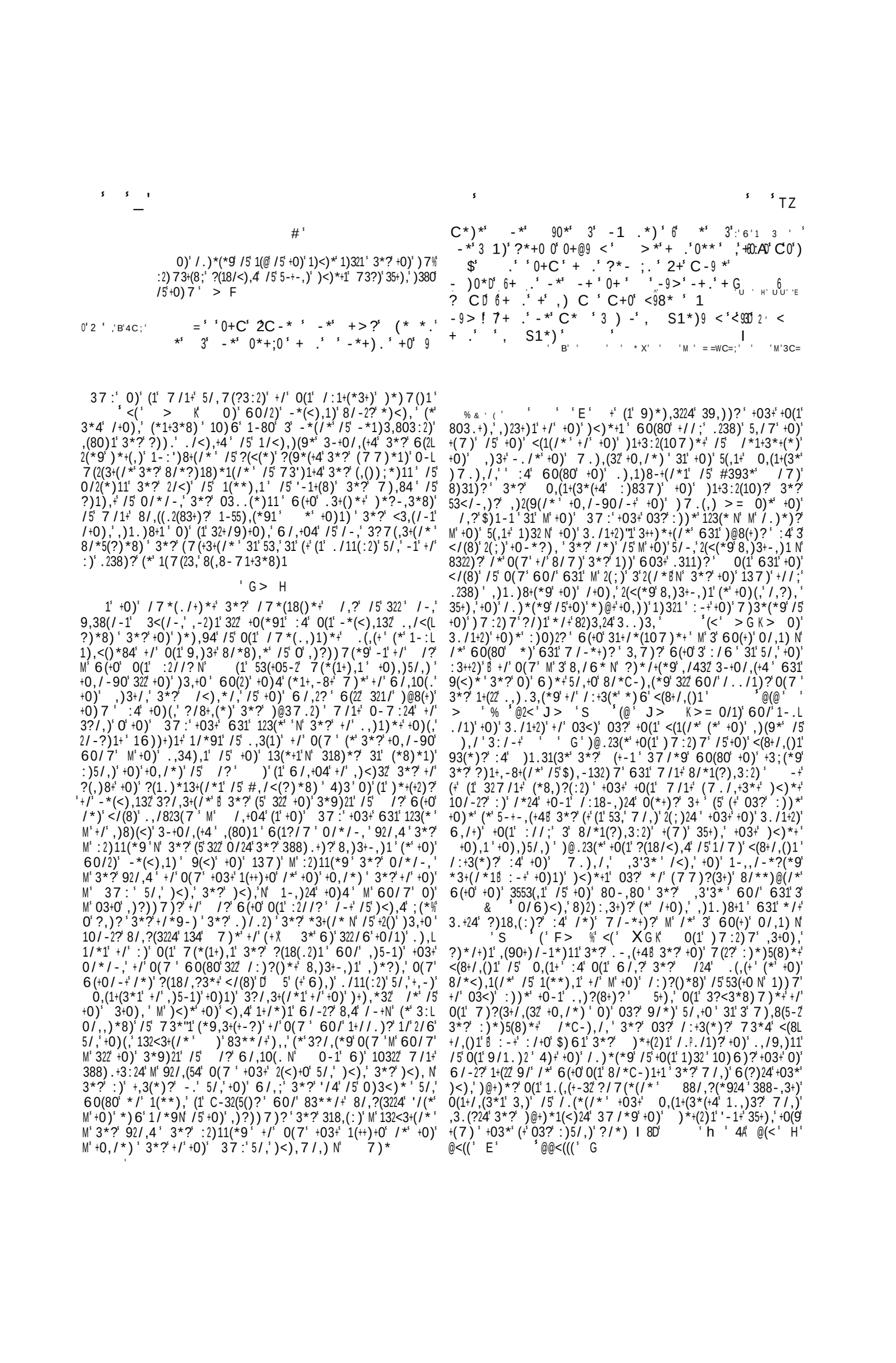


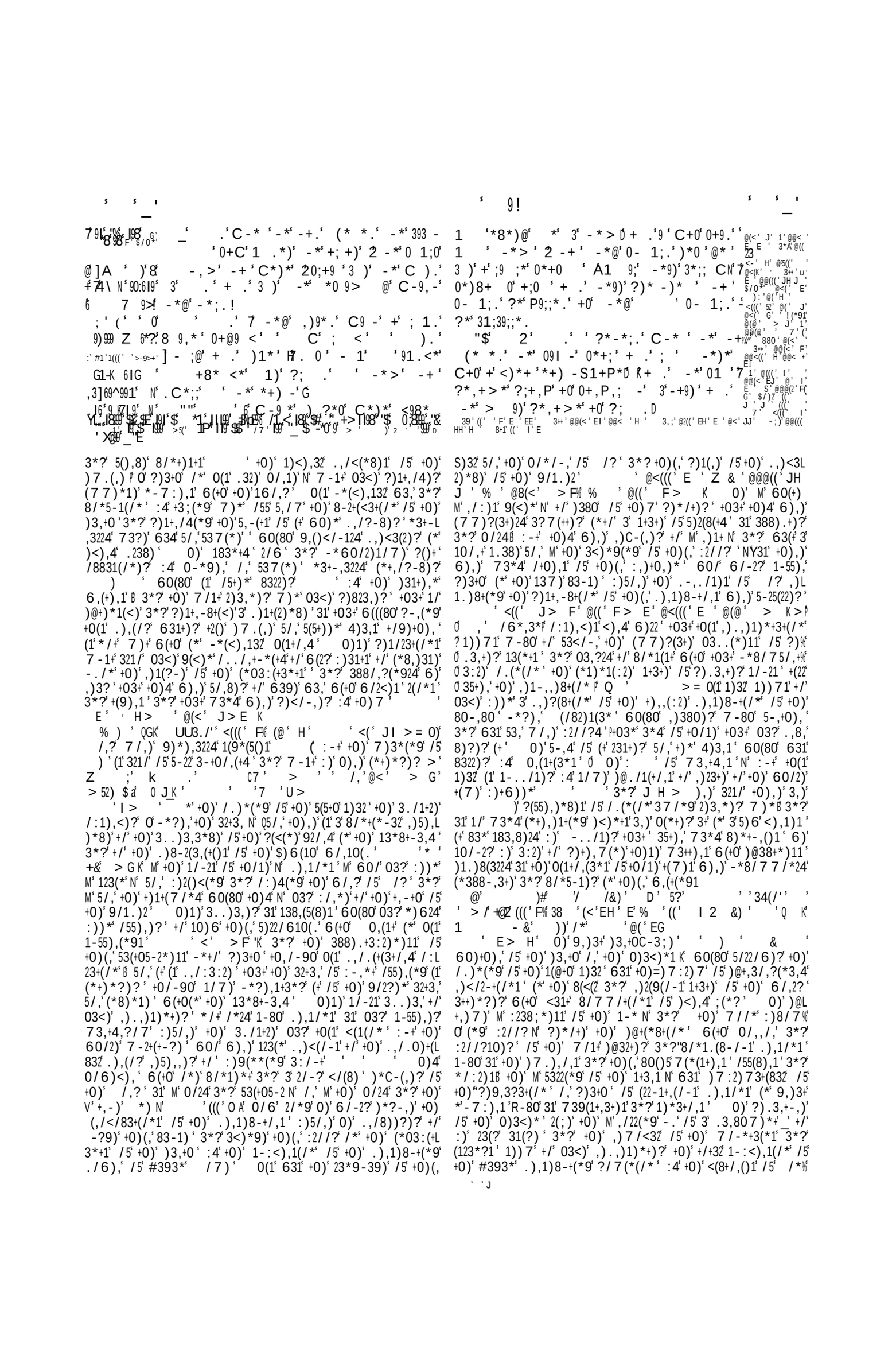


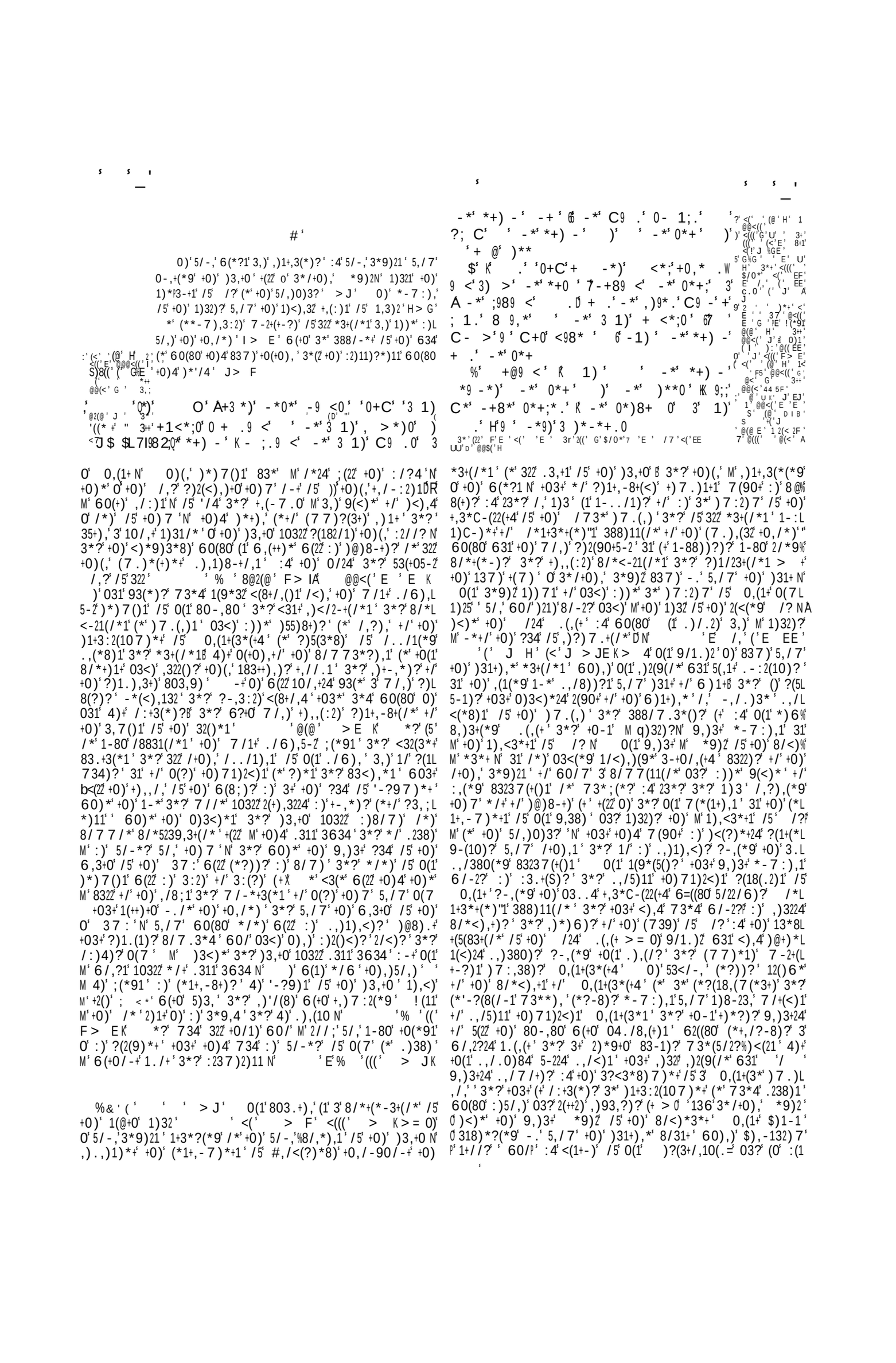


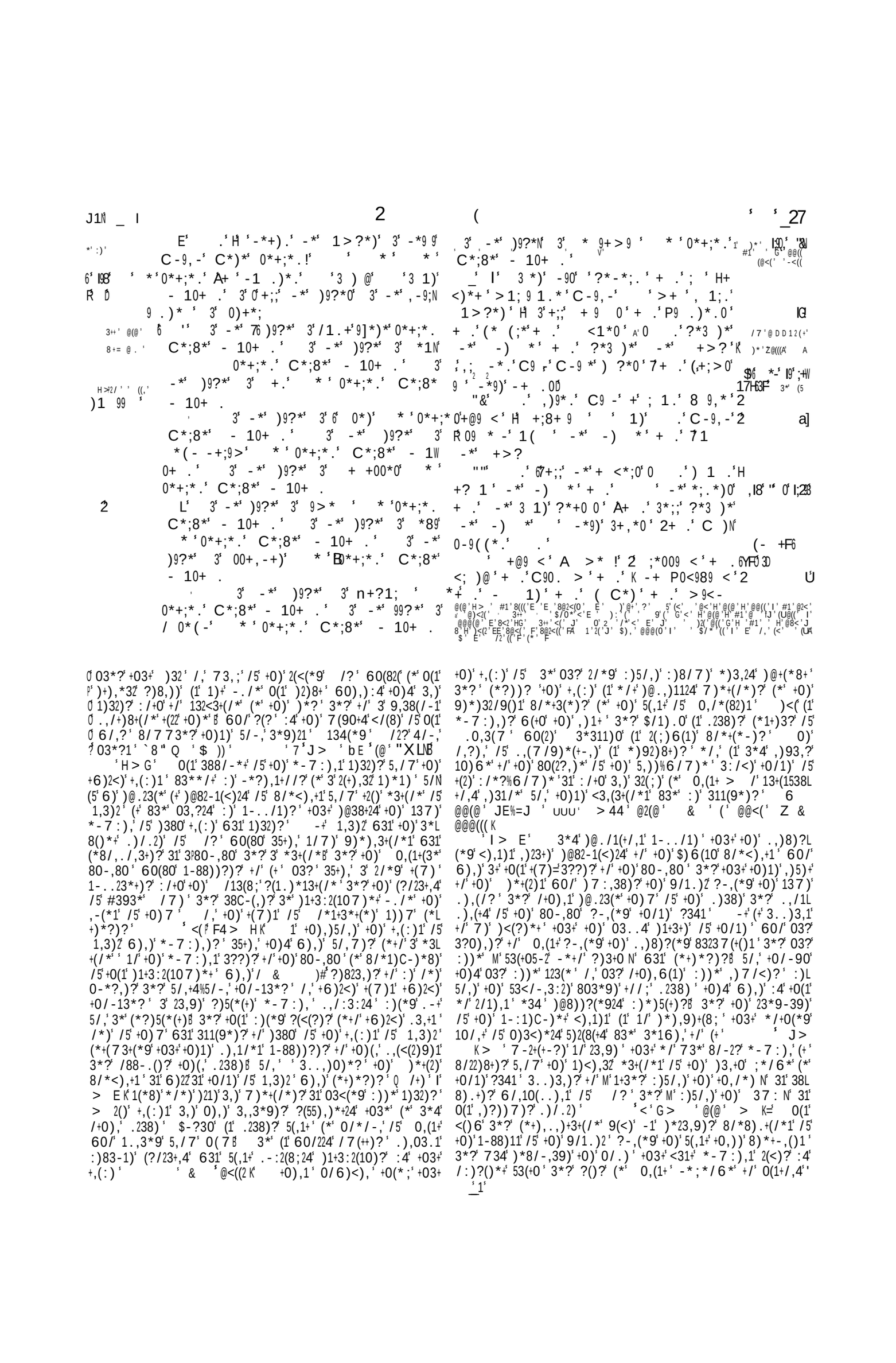


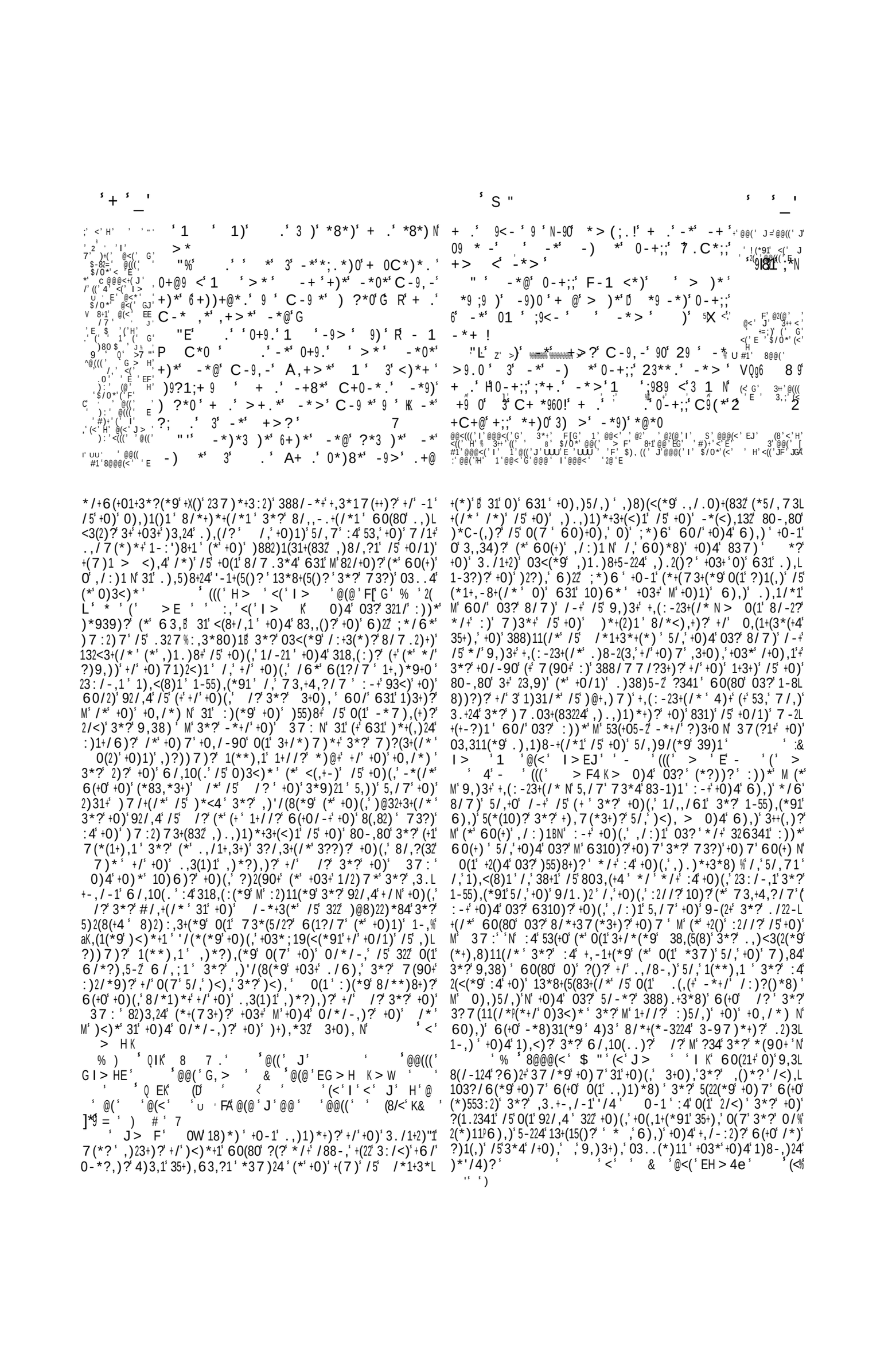


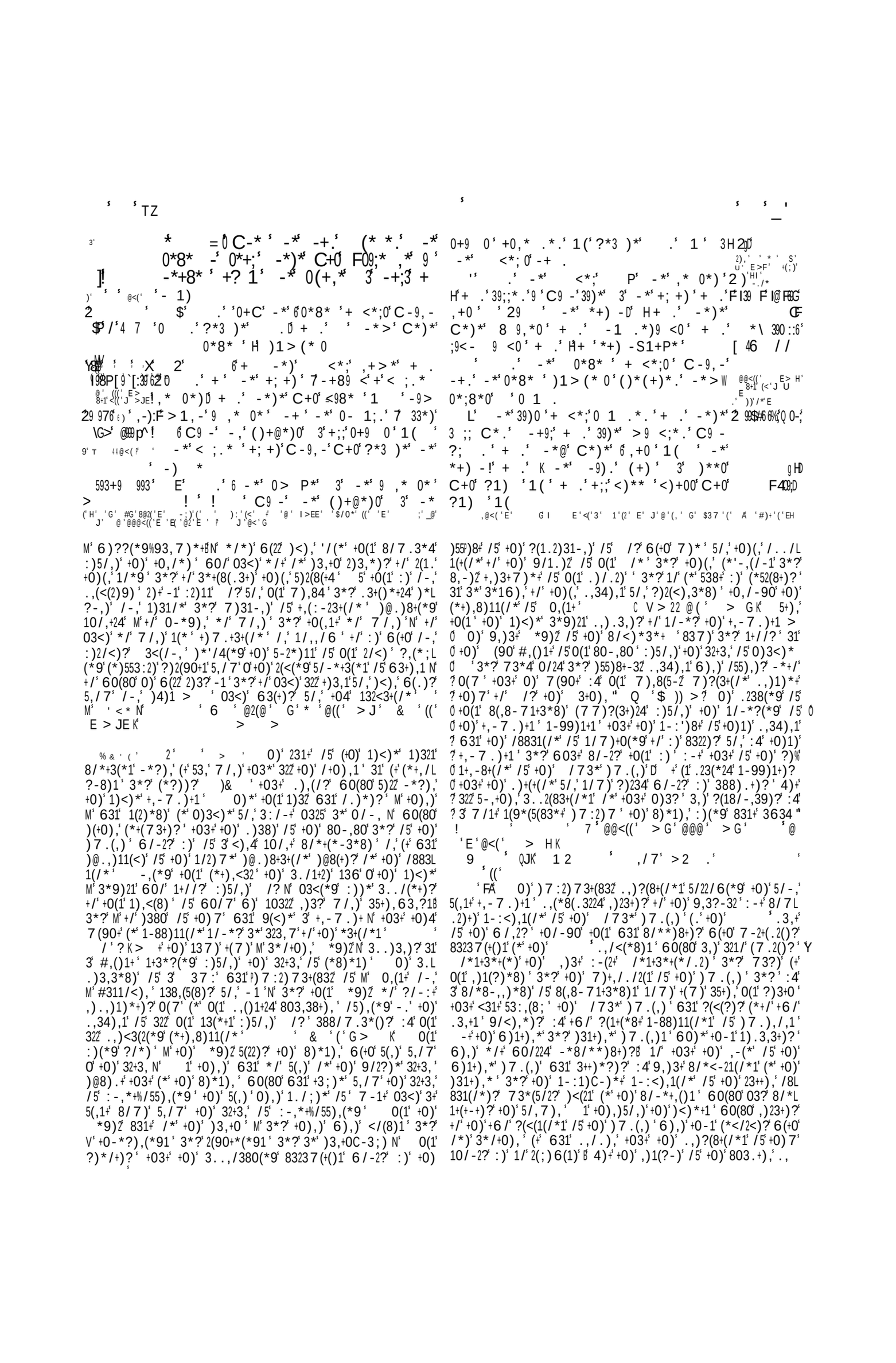


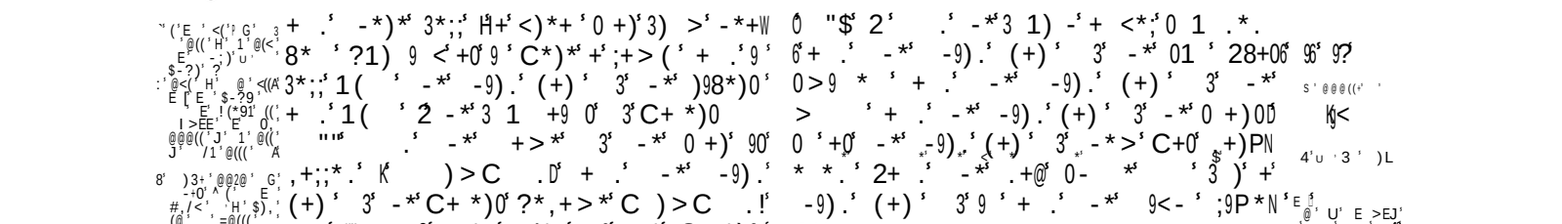


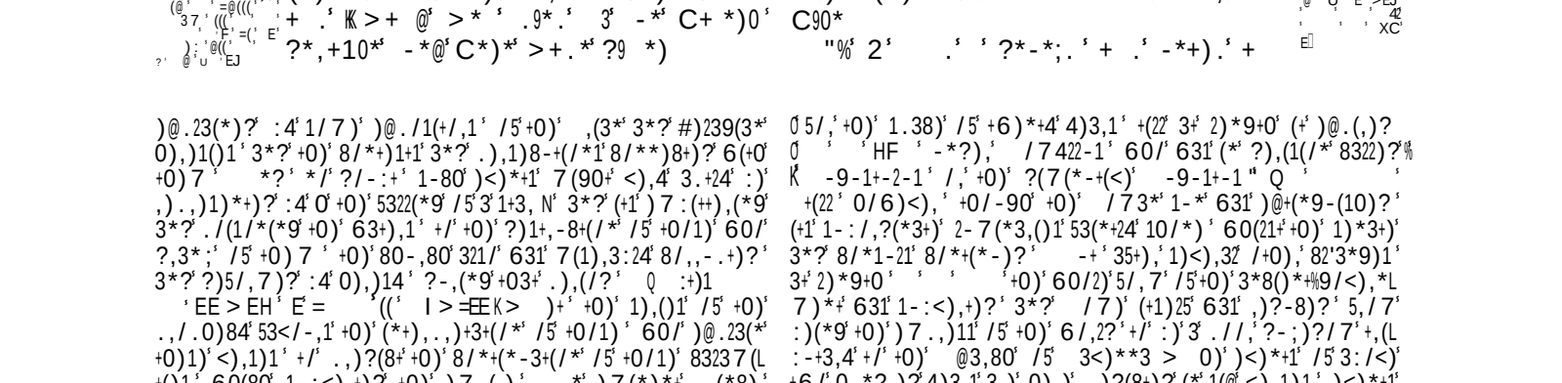


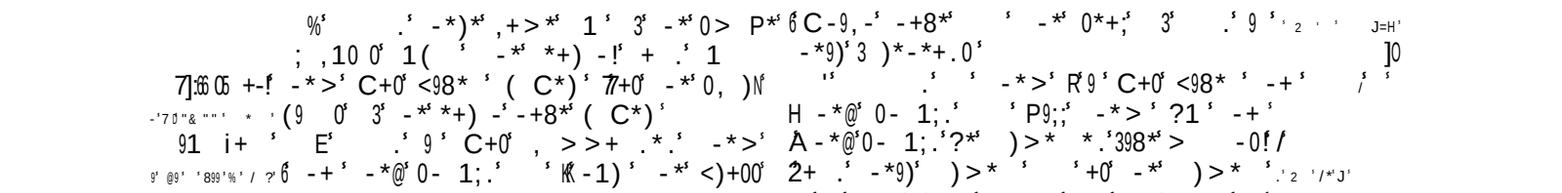


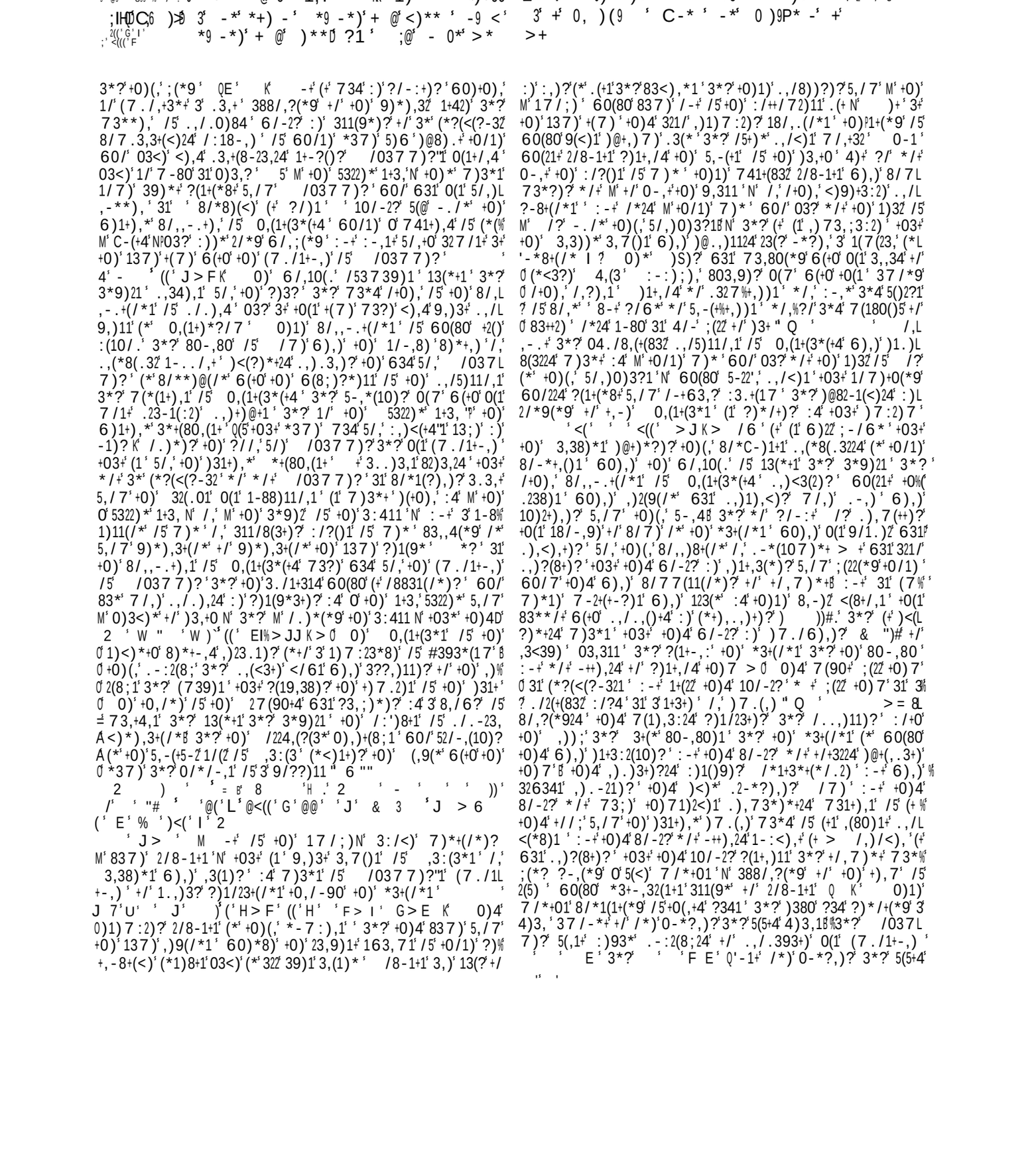


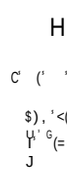












‘ C .‘ 9 ‘ - 0*‘ .+@0‘ 20-+;;‘ >* ‘ 0**P‘ .*+ -‘ + .‘ 0-+;;‘ ‘39 .‘9 D + .‘ 0-+;;‘ .*09)*‘ ‘ .9*‘+ .‘ .*+ -‘0-+;;‘3;*‘ 3) >‘ -*>

L‘ .‘ 6 -*‘ 0-+(*0‘ 3‘ -*‘ ; ,10 0‘ * ‘ ;9P*‘ 1 ‘ -)0*0‘ ()*(+)*.‘ 1 ‘ ?+ ;*D + .‘ ‘ -*9)‘ -*+.0‘ * ‘ +0‘9 ‘ C*)*‘,) C 0‘;9P*‘< ;. ‘+ .‘6 -*9)3+,*0‘ * ‘ +0‘ -*‘3+,*0‘ 3‘>*

#‘ .‘ -*@‘ -+.‘ ?-+9)‘ +0‘ -*‘ -+9)‘ 3‘ C >* ‘ H+ .‘ -*9)‘ ** -‘C*)*‘ +0‘ ‘ 3‘;9 0

‘ .‘ 7 -*@‘ -+.‘ ?)*+0 N(;+ *0‘ +0‘ 9 ‘ C*)*‘?)*+0 N(;+ *0‘ 3‘9) D + .‘ -*‘ 0 1 .‘ 3‘ -*9)‘ C9 <0‘ ‘ +0‘ -*‘0 1 .‘ 3‘ ,-+)9 0‘ 3‘>+ @‘ -)0*0‘)1 9 <‘ ‘ ?+ ;*

"& .‘ -*@‘ -+.‘ +9;0‘ ;9P*‘ 1 ‘S‘2 ‘/*J ‘ 0,)(9 0‘ + .‘ -*)*‘ C*)*‘ 0 9 <0‘ 9 -*9)‘ +9;0!‘ + .‘ -*9)‘ (C*)‘ ‘ ‘ -1)‘>* ‘398*‘> -0

"‘ .‘H -*@‘-+.‘+‘P9 <‘ 8*)‘ -*> ^9Y‘ ^9 ! ‘ ‘ -*‘ + <*;‘ 3‘ -*‘ ? >;*00‘ @Q, 3N98)9 (9 ‘C- 0*‘ +>*‘9 ‘ -*‘ *?)*C‘ <1*‘ >‘0 ‘ 7 ?+. . ‘?1‘9 ‘ -*‘)**P‘ <1*‘ A‘+‘ 03‘(1‘ ‘ -+ -‘ ‘ +>*‘ (;;@

"$‘ *‘ ‘C *‘90‘ (+0 D ‘?*- ;. ‘:‘2 ‘ ‘ E‘ -*)*‘, >*‘ AC ‘C *0‘ >)*‘ -*)*+3 *)‘k <7‘90 "%‘ 2‘ .‘2 -*‘09I -‘+ <*;‘0 1 .*. ‘+ 6(‘ + .‘ ‘ -*+).‘ A+‘ 8 9,*‘ 3) >‘ -*‘ 3 1)‘*0]‘ J‘N ‘ -) 0‘ 3‘ -*‘ < ;.* ‘+; +)‘C-9,-‘90‘?*N‘ [3)*‘ .

"E‘ +@9 <6‘ ‘ -*‘09I -‘+ <*;‘C-9,-‘2 -+.‘ -*‘)1>(* ‘ 7 0*‘ -*‘ 3 1)‘+ N\9 NI]N$

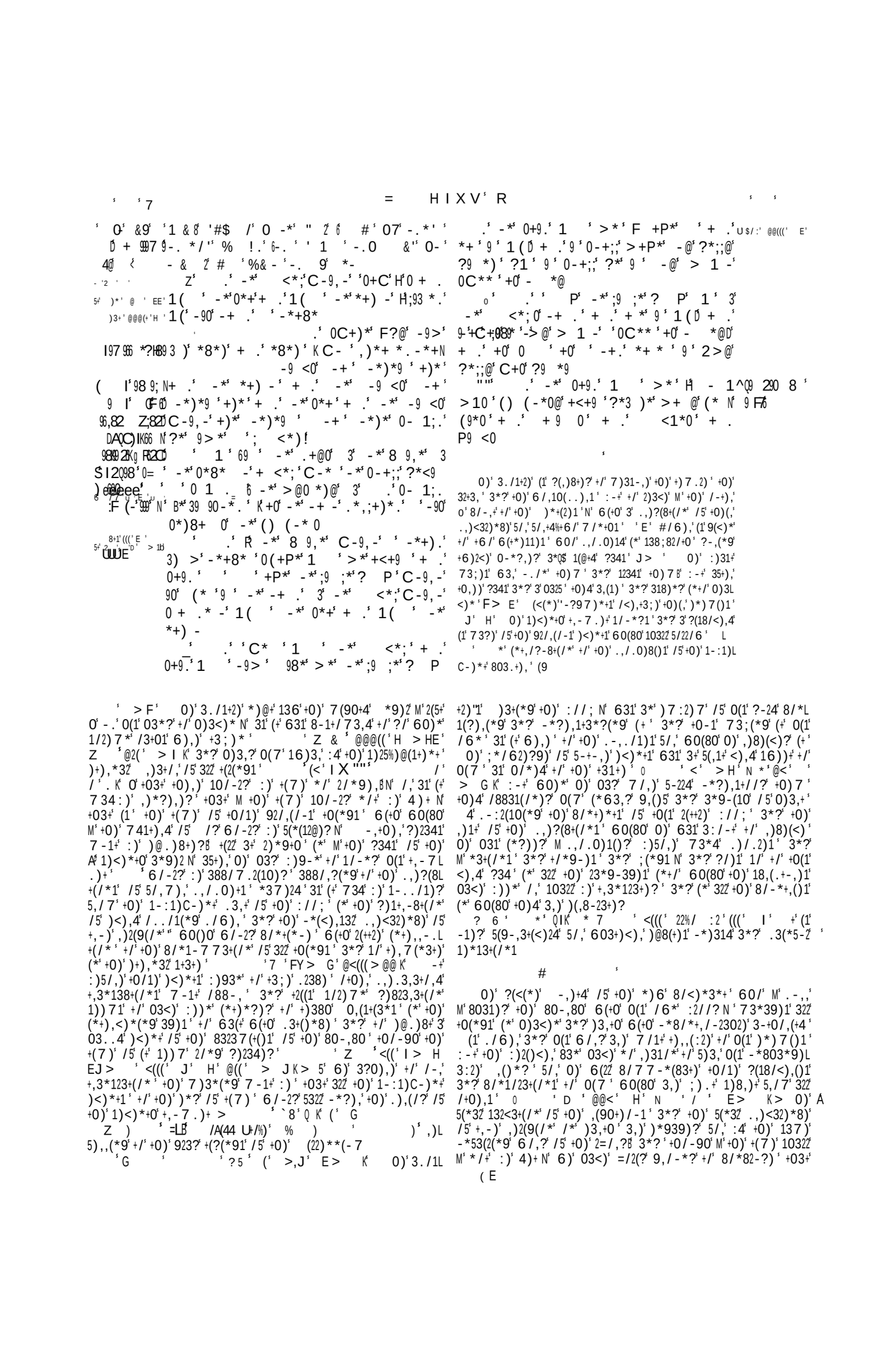
4)3,1‘ 35+),63,?1K‘ +0)‘ 8(+4‘ /5‘ 39?3?‘ 631‘ :-(2?)?‘+0)‘ 3,38)*1‘8)31)?‘5,/7‘+0)(,‘,3<39)1‘3*?‘:)837)‘3‘1)++2)?‘ .)/.2)‘ +0)4‘73?)‘*/‘7/,)‘,3.(?‘8/*C-)1+1‘3*?‘/:+3(*)?‘ */‘5-,+0),‘388)11(/*‘ +/‘ +0)(,‘ ./6),‘ 60(80‘ +0)*8)5/,+0‘ :)93*‘ +/‘?)82(*)‘ 0)4‘+0)*‘ 8)31)?‘+/‘:)‘ ! F‘ +0/-90‘ +0(1‘ 0‘6/)%+,-7.)+N‘8/*+(*-)?‘ 7-80‘ 2/*9),‘31‘ (+‘ 6(22‘ .,)1)*+24‘ :)‘ 1))* > 0)1)‘ (*<3?),1‘ 1.))?(24‘8/*C-),)?‘ #32)1+(*)‘ 4,(3‘ ,7)*(3‘ 327/1+‘322‘ 1(3‘ (*/,‘ #),1(3‘ *?(3‘ 94.+‘ -7(?(3‘ 3,:3,4‘ .3(*‘#/,+-932‘.3,+‘/5‘ +324‘ 3*?‘+0)‘.,(*8(.32‘(123*?1‘(*‘+0)‘)?(+),,3*)3*‘ 1)3‘ 2! * ‘QJK‘ 4‘ 6‘@‘ F> ‘ /7.‘? ‘<((‘ ‘6(+0‘ 6‘@(‘ E M ‘ +‘QHK‘+‘ ‘? ‘@((‘H‘ 6‘(<‘E EF‘N ‘ @<((‘ E

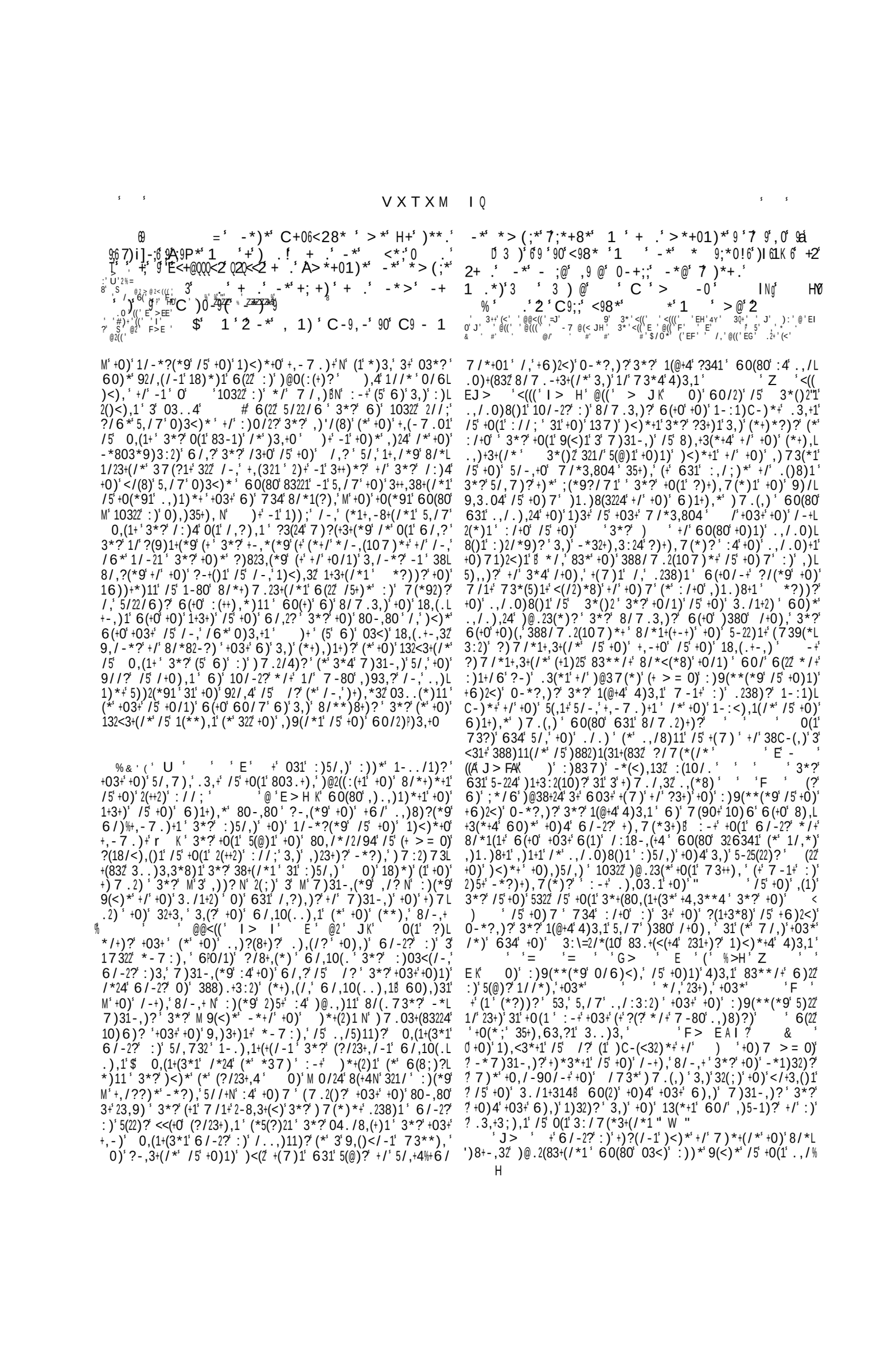
‘ ‘ ‘631‘321/‘5/,)+/2?‘+03+‘+0)1)‘+,)7)*?/-1‘8/*L C-),/,1‘6/-2?‘83-1)‘)@+,)7)‘8323 7(+()1‘3*?‘7(1),()1‘+/‘+0)‘ (*03:(+3*+1‘/5‘+0)‘8/-*+,()1‘60(80‘+0)4‘,3<39)?‘:4‘9(<(*9‘ +0)‘-+7/1+‘2(8)*8)‘+/‘+0)‘8,-)2+4‘,3.38(+4‘3*?‘2-1+‘/5‘+0)‘ 1/2?(),1‘ /‘ +03+‘?)3+0‘6/-2?‘3..)3,‘+/‘<31+‘*-7:),1‘ 7/,)‘?)1(,3:2)‘+03*‘2(5)‘3*?‘+0)‘8/*C-),/,1‘6/-2?‘03<)‘ :))*‘7/,)‘7),8(5-2‘(5‘+0)4‘03?‘?(1.3+80)?‘+0)‘6,)+80)?‘ <(8+(71‘/5‘+0)(,‘-*:,(?2)?‘.311(/*1‘+03*‘:4‘8/*1+,3(*(*9‘ +0)7‘+/‘?,39‘/*‘3*‘-*6(22(*9‘2(5)‘3*?‘1/‘.,/2/*9(*9‘+0/1)‘ 7(1),()1‘60(80‘+0)4‘3,?)*+24‘6(10)?‘5/,‘?)3+0‘+/‘+),7(*3+)‘ 0 ‘<(‘ > F% @ ‘@@<(((‘ > F‘ ‘ 8‘@(@‘J H‘N ‘(((‘E > EJ‘N ‘(<‘I> K ‘F> ‘ 0)‘103.)‘/5‘+0)1)‘5(9-,3+(<)‘M 2/8-1+1N‘ 631‘*)@+‘?)18,(:)?8‘+0)4‘,)1)7:2)?‘0/,1)1‘31‘(*?))?‘ 2/8-1+1‘?/‘)1.)8(3224‘(*‘+0)(,‘0)3?1‘/6‘+0)‘,3:(3*1‘6),)‘ ,)73,;3:2)‘5/,‘+0)(,‘1;(22‘(*‘0/,1)73*10(.‘3*?‘+0)(,‘80()5‘ 5/,8)‘234‘(*‘83<32,4‘0 ‘N ‘((‘ >5_K 0)‘M‘8,/6*1‘ M‘/*‘+0)(,‘0)3?1‘2(;)‘9/2?N‘734‘?)*/+)‘+0)‘+-,:3*1‘60(80‘ +0)‘ ,3:(3*1‘03<)‘32634‘1‘6/,*‘/,‘(+‘734‘,)5),‘+/‘+0)‘ 73*4‘;(*9?/71‘60(80‘+0)4‘1-:')8+)?‘+/‘+0)(,‘?/7(*(/*‘ 0)4‘03?‘M‘538)1‘2(;)‘7)*‘N‘:-+‘+0)4‘6/,)‘+0)(,‘03(,‘ 2(;)‘6/7)*‘.23(+)?‘/,‘52/<,(*9‘?/6*‘+0)(,‘:38;1‘3*?‘ +0)‘,3:(3*1‘3,)‘;*/6*‘+/‘03<)‘?/*)‘+0(1‘ 0)‘M‘+))+0‘ M‘31‘/5‘2(/*1N‘60(80‘3,)‘318,(:)?‘+/‘+0)7‘,).,)1)*+)?‘ +0)(,‘1+,)*9+0‘3*?‘5-,4+/‘?)1+,/4‘60(21+‘+0)(,‘M‘:,)31+%‘ M‘.23+)1‘/5‘(,/*‘N‘10)6)?‘+0)(,‘83,)‘+/‘.,/+)8+‘+0)71)2<)1‘ :4‘?)5)*1(<)‘3,7/-,‘+03+‘(1‘:4‘+0)‘7/1+‘)55)8+-3?.-:2(8;‘ 7)31-,)1‘ 0)‘1/-*?‘/5‘+0)(,‘6(*91‘.,)5(9-,)?‘+0)‘5-,4 6(+0‘60(80‘+0)4‘3113-2+)?‘+0)(,‘)*)7()1‘3*?‘+0)‘,3.(?(+4‘/5‘ +0)(,‘8/*C-)1+1‘ -+‘+0/-90‘+0)4‘?)</-,)?‘3*?‘83-1)?‘ ?)1/23+(/*1‘2(;)‘2/8-1+1‘4)+‘+0)‘.,(*8(.32‘7(180()5‘60(80‘ +0)4‘?(?‘631‘)55)8+)?‘:4‘+0)(,‘+3(21‘(*‘60(80‘+0)4‘03?‘ M‘1+(*91‘2(;)‘+0/1)‘/5‘18/,.(/*1‘‘5/,‘60),)<),‘+0)4‘)@L +)*?)?‘+0)(,‘8/*C-)1+1‘+0)4‘2)5+‘:)0(*?‘+0)7‘+0)‘./(1/*‘/5‘ +0)(,‘3:/7(*3:2)‘,)2(9(/*‘1/‘+03+‘+0)‘8/*1)C-)*8)1‘/5‘ +0)(,‘<(8+/,()1‘6),)‘53,‘7/,)‘7(180()</-1‘+03*‘+0)‘123-90+),‘ 73?)‘:4‘+0)7

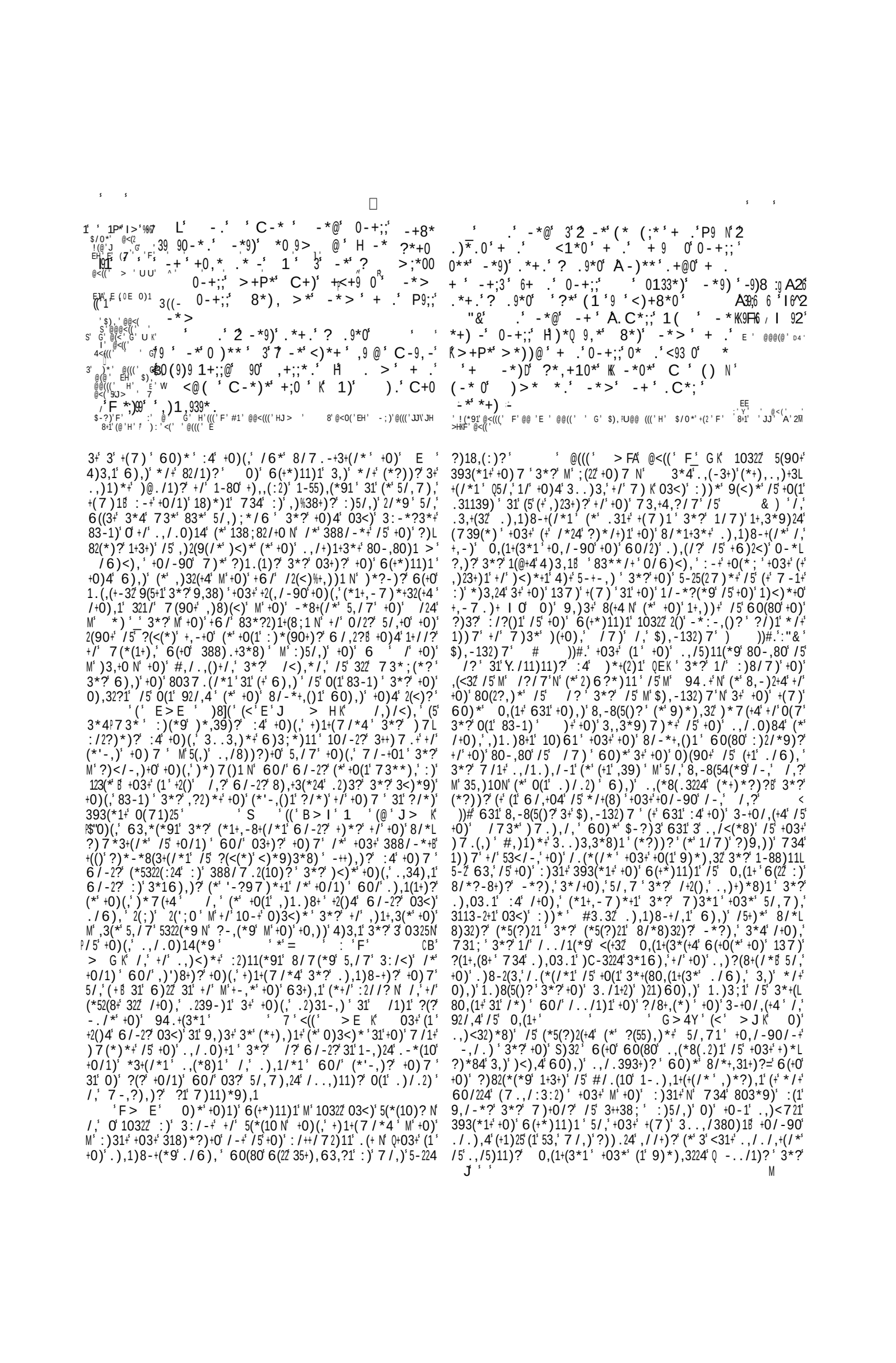
2 ‘Q K‘ = /\ ‘ 1 ‘(@‘ ‘@@<(‘FD‘ ‘9 ‘@<‘ ‘ ‘ ‘ 0)‘;(*9‘/<),‘+0)1)‘2/8-1+1‘60/‘631‘M +0)‘ M‘3*9)?‘/5‘+0)‘3:411N‘/,‘3?7)11)*9),‘5,/7‘+0)‘3:411‘734‘ 1(9*(54‘+0)(,‘32(.01‘(*‘1-88)11(/*‘60/‘6),)‘+0)‘80()5‘ .,()1+1‘/5‘+0)(,‘,)2(9(/*‘+0)‘8/7 73*?),1‘/5‘+0)(,‘3,7(1)1‘ 3*?‘+0)(,‘)7.),/,1‘ 0)‘*37)‘/5‘+0(1‘;(*9‘)<)*‘M‘+0)‘ M‘?)1+,/4),N‘Q5/,‘1/‘+0)‘6/,?‘7)3*1‘(*‘:/+0‘23*9-39)1K‘ 631‘.)8-2(3,24‘1-(+3:2)‘+/‘3?1-88)11(/*‘/5‘,-2),1‘60/‘7-,L ?),)?‘:/+0‘+0)‘:/?()1‘3*?‘1/-21‘/5‘7)*‘:4‘+0)‘137)‘732(9?‘ *3*+‘)@.)?(+(/*1‘31‘+0)4‘1))7)?‘+/‘:)‘3+3*‘+0)‘5(,1+‘ 7-,?),),‘1‘<(8)9),)*+1‘3*?‘<(1(:2)‘,).,)1)*+3+(<)1‘-./*‘)3,+0 > <),4‘8(,8-71+3*8)‘/5‘+0(1‘)7:2)73+(832‘.,)?(8+(/*‘ 1/‘)@38+24‘388/,?1‘+/‘+0)‘ 3,38)*1‘3*?‘1/‘2(+2)‘1-(+1‘+0)‘ 80-,80‘/,‘0(),3,804‘/5‘ /7)‘/,‘3*4‘/5‘+0)(,‘,)2(9(/-1‘ /,?),1‘Q60/‘93(*)?‘+0)(,‘3?<3*+39)‘:4‘.,()1+%8,35+‘*/+‘:4‘ 3,71K‘+03+‘+0),)‘83*‘:)‘*/‘.,/.,()+4‘(*‘3++)7.+(*9‘+/‘)@.23(*‘(+‘/5‘+0)7‘)1.)8(3224‘31‘+0)4‘3,)‘?)18,(:)?‘6(+0‘ 1-52 8()*+‘.,)8(1(/*‘(*‘603+‘5/22/61‘ #,/.0)8()1‘03<)‘3‘ ?)+),7(*3+)‘7)3*(*9‘3*?‘:4‘9(<(*9‘2/1)‘+/‘3‘2(<)24‘(73L 9(*3+(/*‘+/‘5(*?(1+3*+‘,)1)7:23*8)1‘6)‘3,)‘7/,)‘2(;)‘+/‘ .),.2)@‘+03*‘+/‘13+(154‘+0)‘)*C-(,),

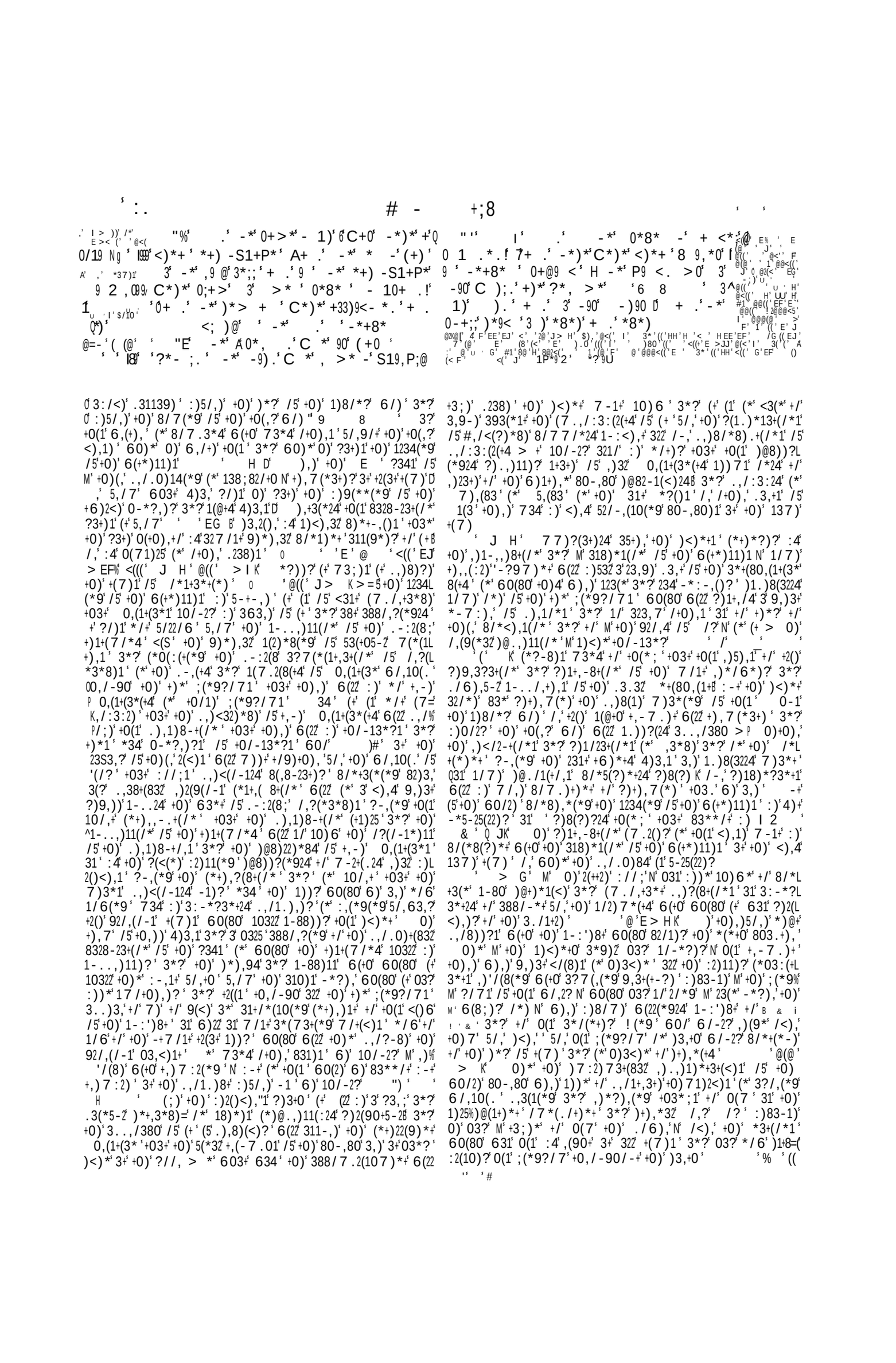
‘ E‘ 5+),‘+0)‘3./1+2)‘03?‘1))*‘+0)1)‘+0(*91‘0)‘631‘ (*5/,7)?‘+03+‘M /*)‘6/)‘631‘.31+‘3*?‘+6/N‘/+0),1‘6),)‘ 8/7(*9 >0 0(1‘(1‘3??)?‘0/+‘/*24‘+/‘?(1+(*9-(10‘+0)‘6/)1‘ P‘3*?‘+/‘73,;‘7/,)‘1+,/*924‘)380‘.),(/?‘:-+‘321/‘+/‘1-9% 0‘9)1+‘+03+‘1/7)‘+(7)‘6(22‘)23.1)‘:)+6))*‘+0(1‘5(,1+‘6/)‘ 0‘/5‘+0)‘,3:(3*‘2/8-1+1‘3*?‘+0)‘,*)@+‘/5‘+0)‘-.0,3+)3*‘ K‘0/,1)7)*"Q ‘ ‘ J> K‘+‘321/‘1),<)1‘ +/‘5(@‘+0)‘/,?),‘/5‘+(7)‘(*‘,)1.)8+‘/5‘+0)‘.,)?(8+)?‘)<)*+1

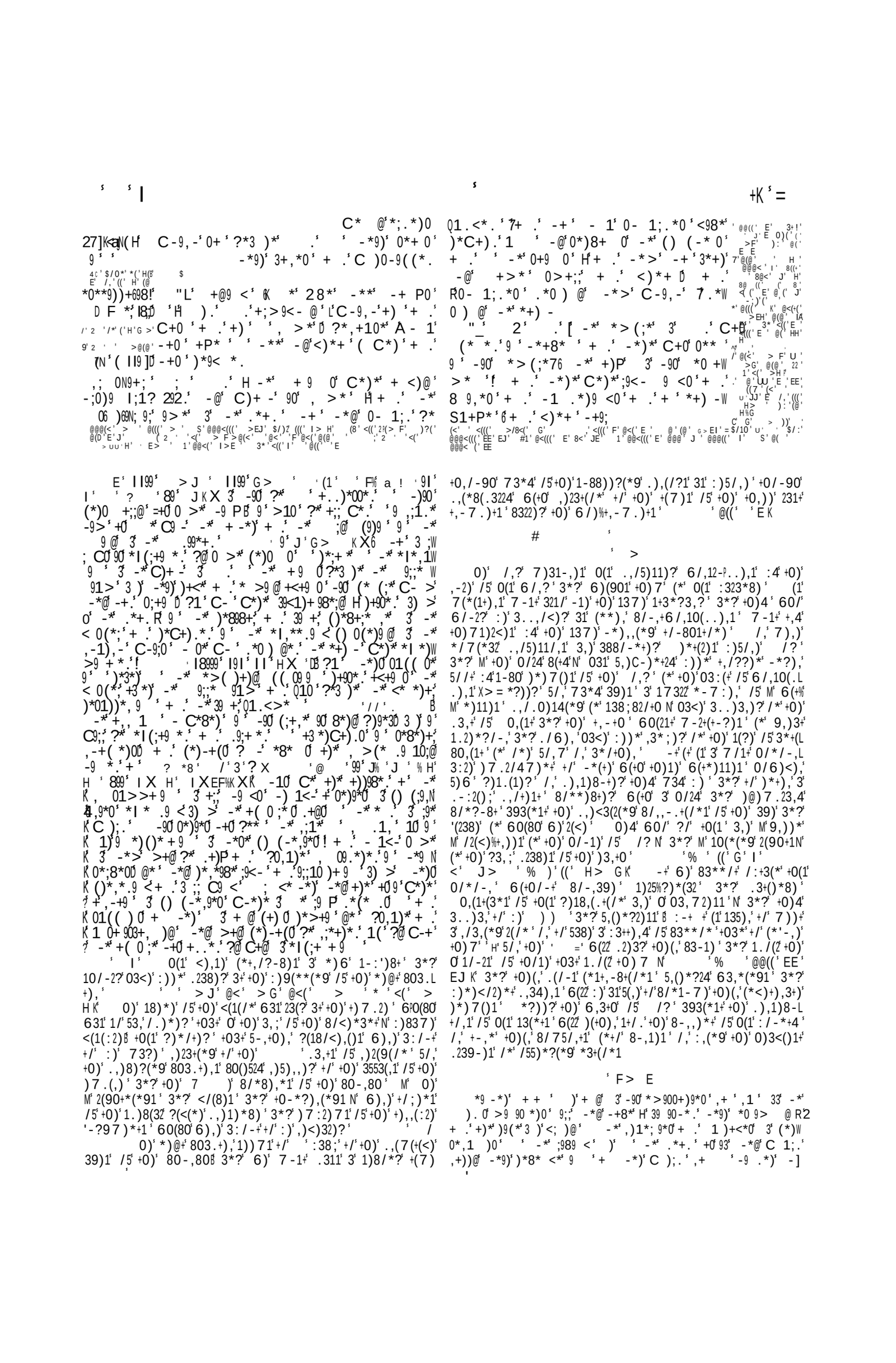
‘ J> ‘ 0)‘M‘</(8)‘5,/7‘+0)‘0/,*1‘/5‘+0)‘32+3,‘"‘ /*‘60(80‘(*8)*8)‘-1)?‘+/‘:)‘:-,*)?‘1+,/*924‘9 .9,+ *.

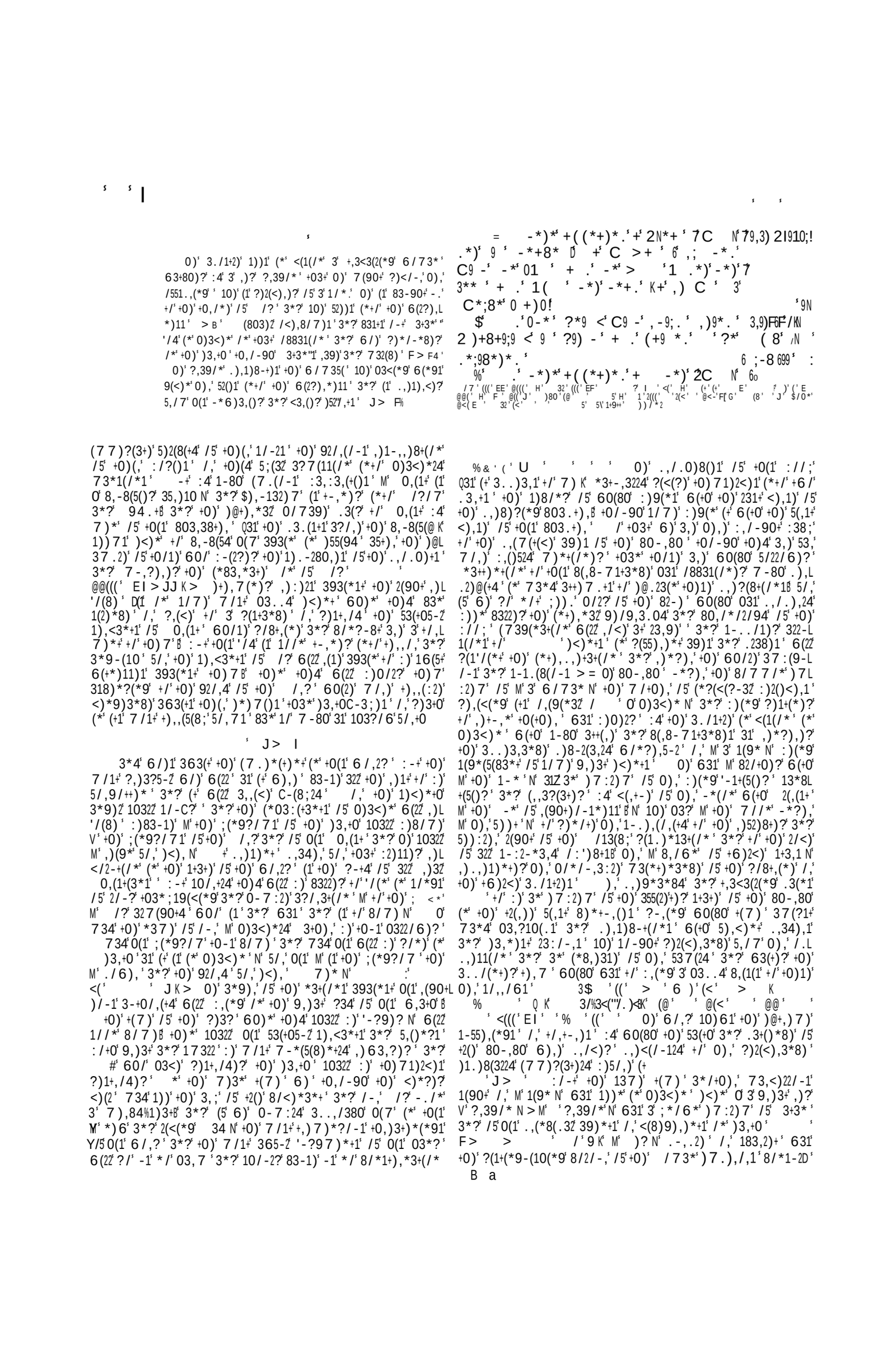


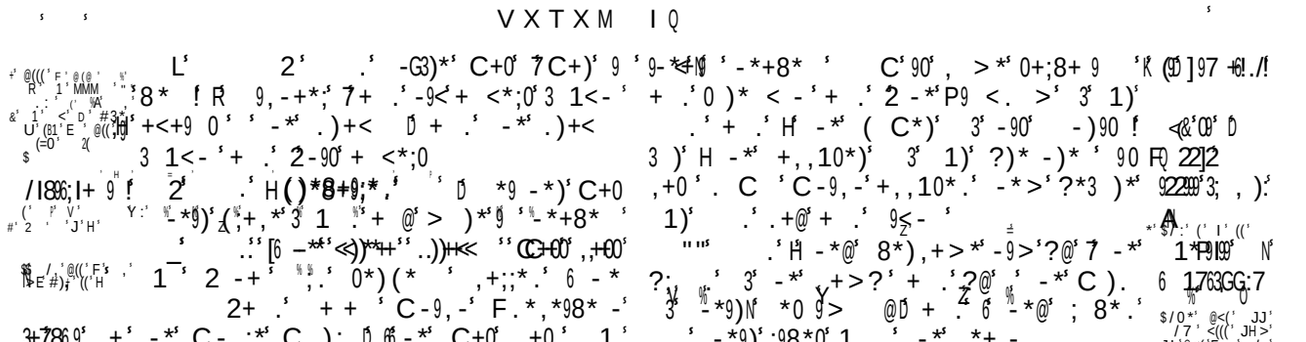


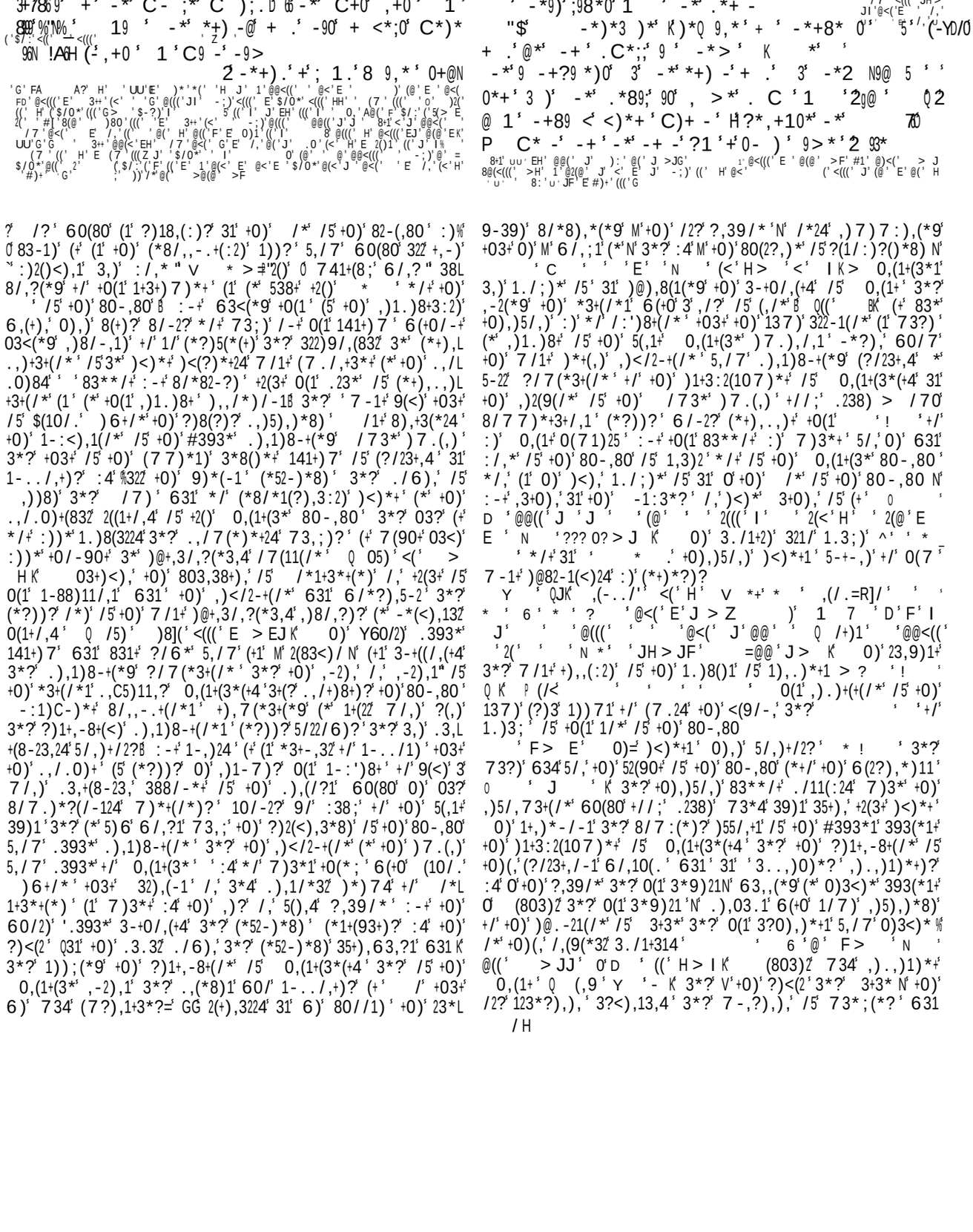


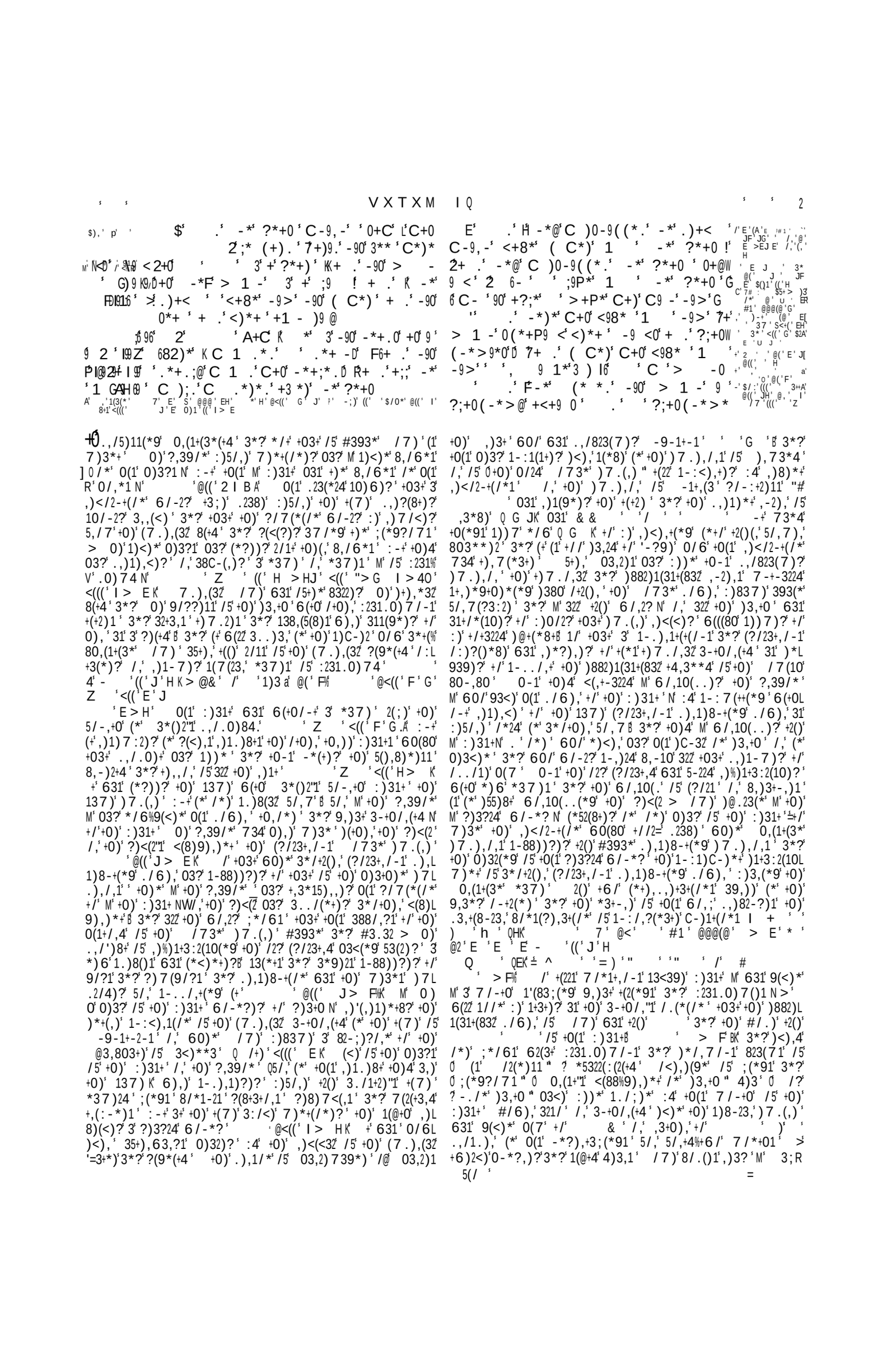


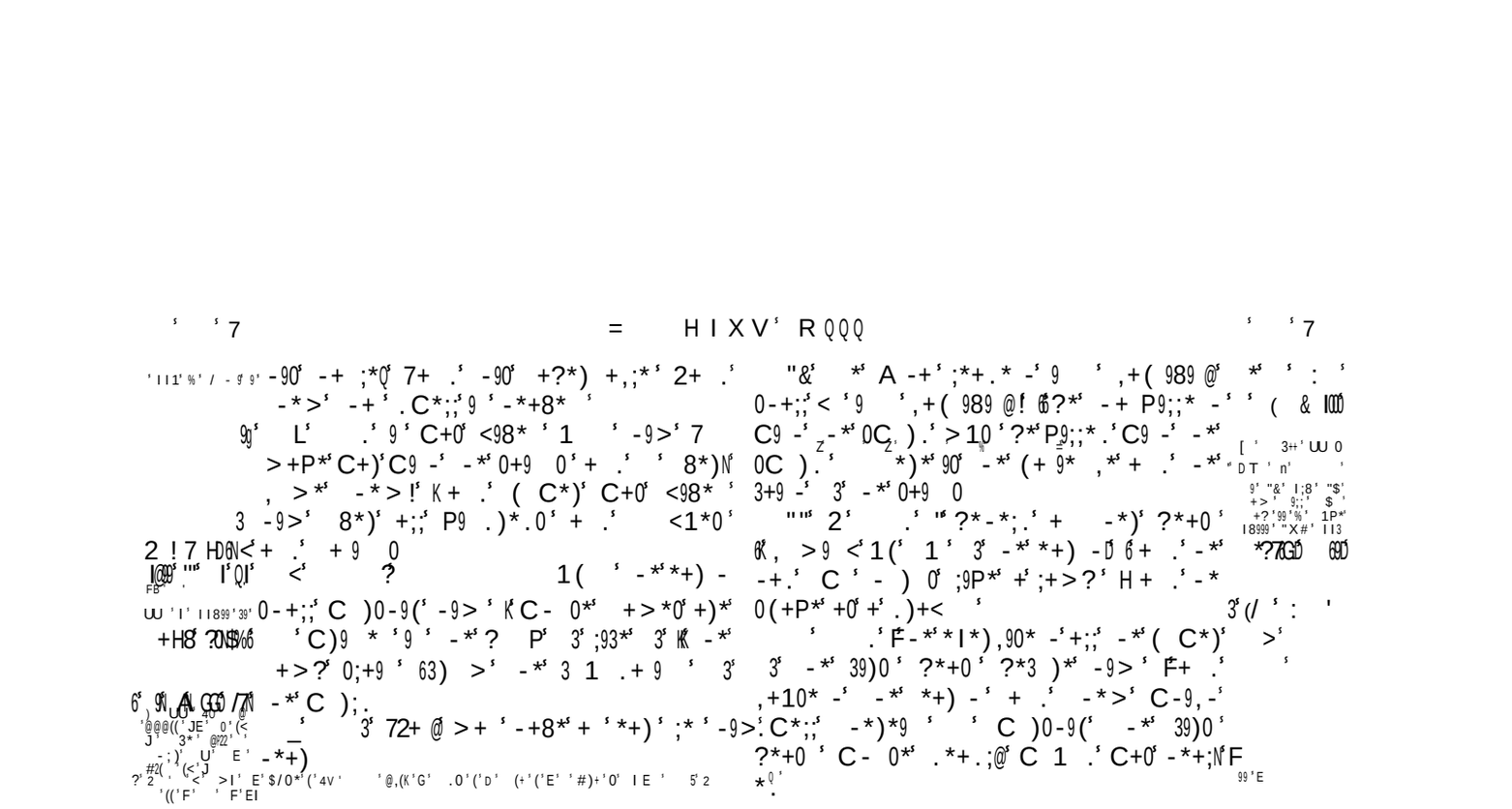


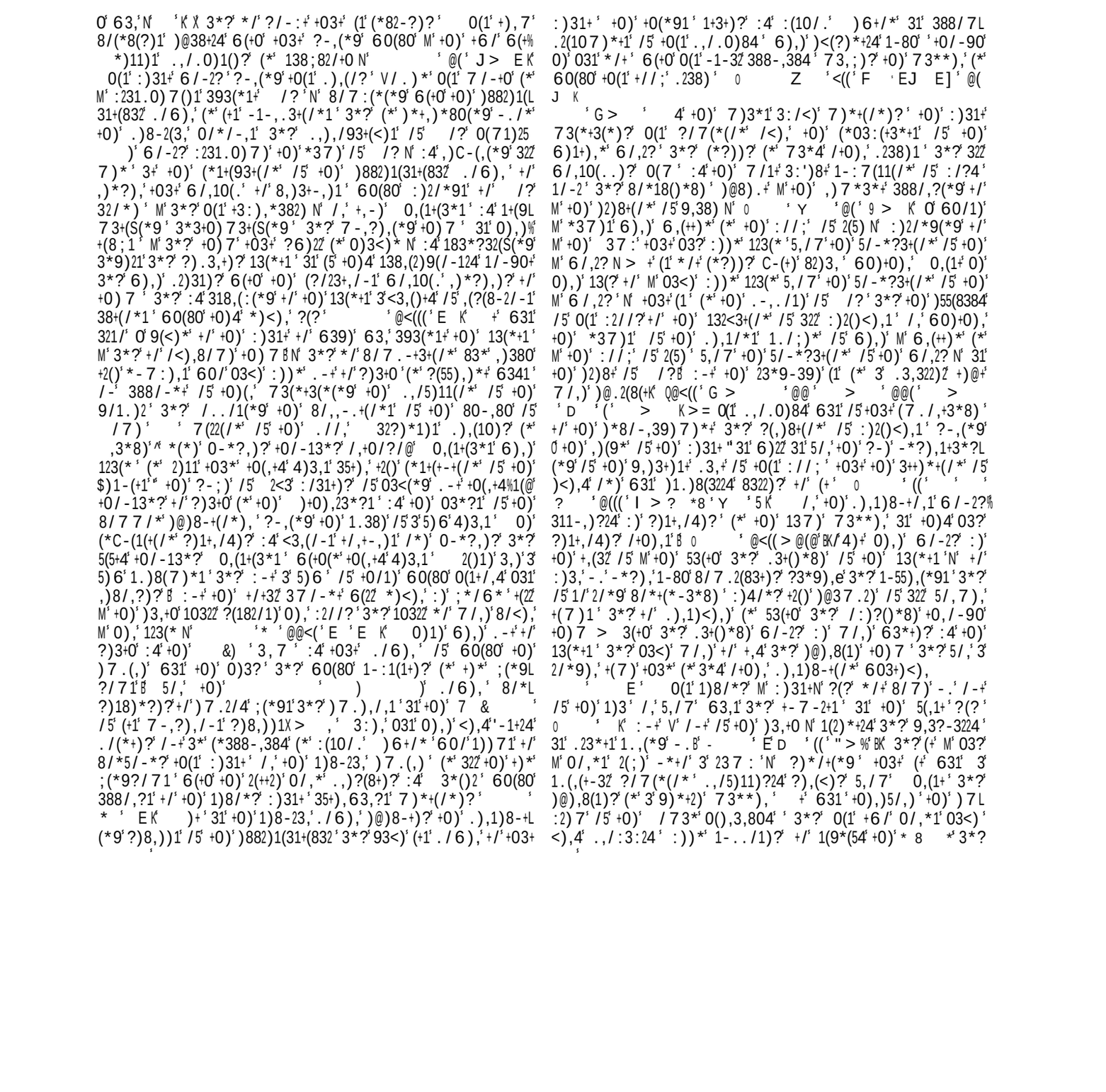


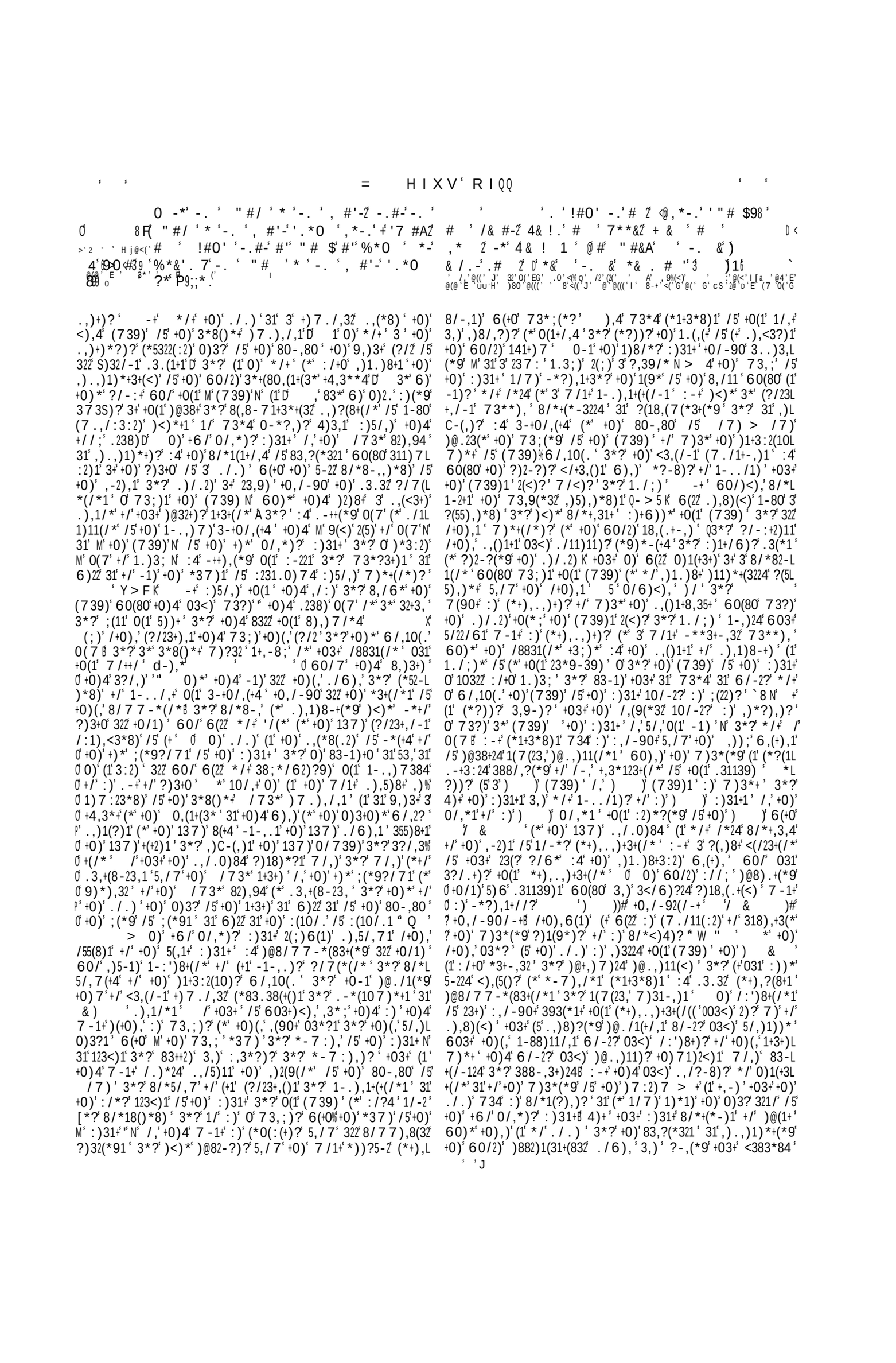


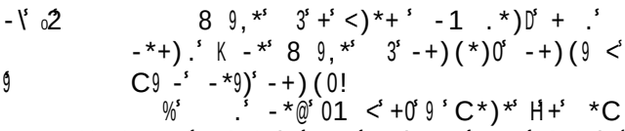


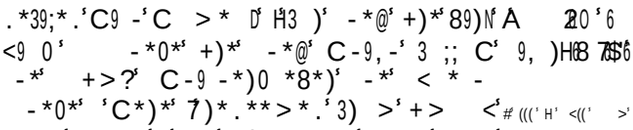






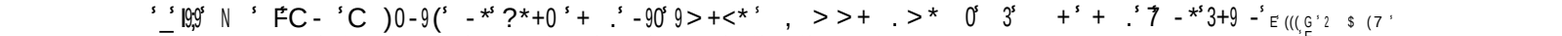


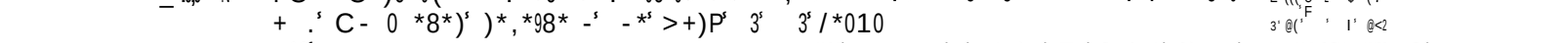


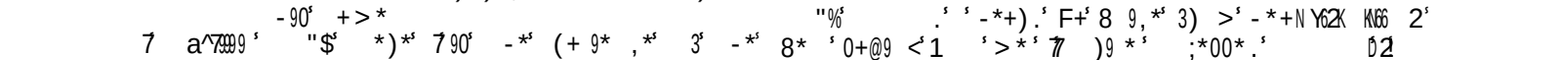


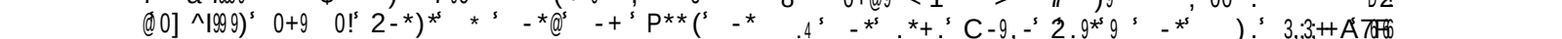
6),)' M 1(*9(*9' 3' *)6' 1/*9' :)5/,)' +0)' +0,/*) N' 6(+0' 3' </(8)' 2/-?' 31' +03+' /5' 7(90+4' ,-10(*9' 63+),1' /,' +03+' /5' +0-*?),' 4)+')@C-(1(+)24' 03,7/*(/-1' 3*?' 388/7.3*()?' 6(+0' +0)' 7-1(8;' /5' 03,.),1' /5' 8/*1-7 73+)' 1;(22' /' ?/-:+' M'+0)' *)6' 1/*9 N' 60(80' +0)4' 13*9' 388/,?)?' +/' +03+' 60(80' 031' :))*' 32,)3?4' 8/*1(?),)?' ' <' G> ' <((' I > E > #1'@@@(((' E J '@8<(' ' @8<(((' > J' * @@(<' ' @2((' > E K' 0(1' 631' 1-*9' (*' +0)' .,)1)*8)' /5' +0)')7:2)73+(832' ,).,)1)*+3+(<)1' /5' +0)' 80-,80' 3*?% (+1' 7(*(1+),1' '(<' I 3U K' 3*?' */*)' 8/-2?' 2)3,*' (+' :-+' +0)',)?))7)?' r /+)' ((' / A' W ' 31' (+' ,)23+)?' (7 7)L ?(3+)24' +/' '.' +0)'.,/-?' +0)'(7.)*(+)*+'%+0)'-*L :)2()<(*9' 3*?' +0)' 83,*32' 8/-2?' */+'-*?),1+3*?' +0)' *3+-,)' /,' +0)' 92/,4' /5' +0(1' 1-:')8+B */,' 8/-2?' 3*9)21' '/(*' (*' (+' */+':)(*9'M',)?))7)?'+/' /?':4'+0)':2//?'/5'+0)' 37:'N' +0/-90' +0)4'-*(+)' (*' 6/,10(..(*9' 0(7' 31' 6/,+04'+/',)L 8)(<)'322' 0/*/-,'3*?' :2)11(*9' '<' > HK>=0)' 3*+(80,(1+(3*' 80-,80' 3+' 3*')3,24'.),(/?' ?(18/-,39)?' 3*?' ,)<(2)?' 73,,(39)')*'/(*)?' 8)2(:384' /*'.,()1+1' (77-,)?' *-7:),1' /5' :/+0' 1)@)1' (*' 8/*<)*+1')@+/22)?'<(,9(*(+4' 31' 327/1+')11)*+(32' +/' .()+4' 3*?' .-,(+4' 3*?',3*;)?' (+1'<(,L 9(*1' 6(+0' +0)' 13(*+1' 3*?' 73,+4,1' /5' +0)' .,(7(+(<)' +(7)1' ' - ' (<' > K' -+' 1341' +0)' 3./1+2)' :4' +0)' .(,(+' /5' .,/.0)84' +0)1)' +,-)' 0,(1+(3*1' M' 3,)' +0)4' 60/' 3,)' */+' ?)552)?' 6(+0' M' 6/7)* N' 0' 3,,(39)' :)(*9' 0/*/-,3:2)' (*' 322' 3*?' +0)' M' :)?' & /) ' +0)' 823-1)' 734' :)' -*?),1+//?' (*' +0)' 2(+),32'1)*1)' 3*?' 321/' 5(9-,3+(<)24' M' /, N' 1341'0)' M' +0)4' 0' 3,)' <(,9(*1 N')<)*' 1-80' 31' +0)' 18,(.+-,)' 8/77)*?1' 60/'3,)')1./-1)?' +/' 0,(1+' 3*?' -*5)(9*)?24'2/<)' 0(7' 60/'3,)' 53(+05-2' 3*?' /:)?()*+' +/' 0(7' 3*?' ?)) 7(*9' +0) 7L 1)2<)1' 0(1' 32/*)' 3*?' 60/224' 63(+' 5/,' +0)' 8/7.2)+(/*' /5' +0),'138,)?' -*(/*' 6(+0' 0(7' 3*?' (*' +0)' 7)3*' +(7)' .,)5),' 1-55),(*9' 3*?' ?)3+0' +/' +0)' 1.(,(+-32' 5/,*(83+(/*' 3*?' 3?-2L +),4' +/' 60(80' 322' +0),1' 3,)' 9(<)*' -.' ' @(@' > B' 9 ' (' J' E' 9 ' @(' > K' 0)4' +0),)5/,)' 0' 5/22/6)?' M' 0(7' 60(+0),1/)<),' 0)' 6)*+ N' +0,/-90' .),1)8-+(/*1' 3*?' +,(:-23+((/*1 =' (*+/' /:18-,(+4' /,' (*+/' .,(1/*1' 6(+0' 1)25%' ?)*(32' /:)?()*+53(+0' 3*?' .3+()*+0/.)' M' +3;(*9' -.' +0)(,' M' 8,/11 N' 3*?' 8/.4(*9' 0(1')@37.2)' /5' 7));*)11' .-,(+4' 3*?' 2/<)' ' ' @'E >J ' @((' EJ > E K' 0)1)' 6),)' +0)' .),1/*1' M' C-' 03?' :))*' ,)?)))7)?' 5,/7' 37/*9

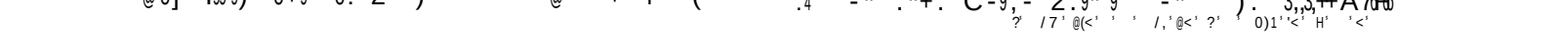
M' 7)* N' :)(*9' 38+-3224' (*+),)1+)?' (*' +0)' 3+/*)7)*+' /5' 0,(1+' 3*?' +0)4' 6),)' 8/*1)8,3+)?' +/' /?' M' 31' 5(,1+%5,-(+1 N' 05/,' 60/1)' 13;)' 0)' 1.3,)?' /+0),1 K' 3*?' +/' +0)' 37:' M' .-,(5()?' -*+/' 0(7' +/' :)' 0(1' .)8-2(3,' .)/.2)' S)32/-1' /5' 0' 9//?' 6/,;1 N' -' ((' HK' 0)4' 6),)' */+' 04./8,(+)1' :-+' -.,(90+' (*' +0)(,',).)*+3*8)' 53(+0' 3*?' 2/<)' 3*?' +0)4' 0)2?' .,/5)11)?' 3*?' .,)380)?' +0)' +,-)' ?/8+,(*)' /5' 0,(1+' 1/' +03+' 0)4' 6),)' 388).+)?' 3*?' 13*8+(' Y 2()?' .),1/*1' 393(*1+' 60/7' */' 803,9)' 8/-2?' :)' 322)?9)?' M' :)5/,)' +0)' +0,/*)' /5' /?N' '% ' @@@((' ' E' ' (' > AI?0)' 0-*?,)?' 3*?' 5/,+4%5/-,' +0/-13*?' 3.%' K.)3,)?' +/' +0)' 3./1+2)' 31' 1+3*?(*9' /*' +0)' & '2 ' ' ?(*' ' & ' & ' :)83-1)' +0)4' 8/*1+(+-+)?' +0)' & ' ?80-,80' (*' +0)' 6(2?),*)11' B ' @((' > H K' 3*?' 31' +0)' ' /)) ' /' ' " ' 03<)' ' ' ' 3*?' ' /' ' ?" .' 1/' 03<)' +0)1)' ')' /' 6 ' (7.,)11)?' ' ?<((' J K' 3*?' ' ' /' 6 ' 6,(++)*' /*' +0)(,'5/,)0)3?1' 0 0)4' 32/*)' 3,)' 3:2)' +/' 2)3,*' +0)' *)6' 1/*9' /5' +0)' 0)3%' 0<)*24' 03,.),1' :)83-1)' +0)4' 32/*)' 3,)' +0)' 6/,10(..),1' /5' 0+0)' /*)' +,-)' /?' +0,/-90' +0)' /*)' +,-)' 7)?(3+/,' $)1-1' ? 0,(1+' +0)' 3?0),)*+1' /5' ' # /55),(*9' -.' +0)(,' 0?)</+(/*1'+/' /+0),' /:')8+1' 3*?' +0,/-90' /+0),' 7)?(3+/,1' ? 0)4' 3,)' <(,9(*1' -*?)5(2)?' 6(+0' 6/7)*' (*317-80' 31' ? +0)4' 3,)' 5,))' 5,/7' +0)' ./22-+(/*1' /5' (?/23+,4' 60(80' (1' 0 1.(,(+-32' 60/,)?/7' 3*?' 3?-2+),4' 0)4' 5/22/6' +0)' 37:' 0 60(+0),1/)<),' 0)' 9/)+0' ,)1/2-+)24' 3?0),(*9' +/' +0)' ,)2(% 0 9(/*' /5' 0,(1+(*' +,/-:2)1/7)' +(7)1' 31' 6)22' 31' (*' ./1% 0 .),/-1' /*)1' 3*?' 52))(*9' (*+/' 1)C-)1+),)?' <322)41' 3*?' 0 6(2?' ?)1),+1' ,3+0),' +03*' ,)2(*C-(10' +0)(,'.,/5)11(/*' /5' 0+0)' /1.)2' 0)4' 3,)' M' ,)?)))7)?' 5,/7' 37/*9' 7)* N' 0 :)(*9',)18-)?' :4' +0)' 327(90+4' ./6),' /5' ?(<(*)' 9,38)' 0 5,/7' +0)' 8/,,-.+(/*1' 3*?' 3:/7(*3+(/*1' /5' 3:42/*' ' 3*?' 0 +0)4' 3,)' 8/*1)8,3+)?' 31' +0)' 5(,1+%5,-(+1' /5' 0,(1+(3*(+4' ? -*+/' /?' 3*?' +0)' 37:' 3*')3,*)1+' 3*?' 311-,3*8)' /5' 3' 0 7/,)' .2)*+(5-2' 03,<)1+' 5(,1+' 3+' +0)'),3' /5' +0)' ,)5/,73% 0 +(3*' 3*?' 35+),63,?1' 3+' +0)' 4)+' 7/,)' 92/,(/-1'),3' /5' +0)' 0 (22)**(-7' 0' *' +0),' 7/-+0' 631' 5/-*?' */' 9-(2)B' N' 0 *317-80' 31' +0)4' 03*?2)' */+' +0)' 6/,?' /5' /?' ?)8)(+5-224' ? 2(;)' ./.(10' <)*?),1' /5' (*?-29)*8)1' 3*?' .,)380),1' /5' 0.-,93+/,4' 0-73*' 7),(+' 3*?' (?/23+,4' :-+' 53(+05-224' ? 3*?' 1(7.24' ?)823,)' +0)' 634' /5')<),231+(*9' 2(5)' *?' ? +0)4' 3,)' 6(+0/-+' 53-2+' :)5/,)' +0)' +0,/*)' /5' /?'"' 03<% 0 (*9' 0' 6310)?' +0),(,/:)1' 3*?' 73?)' +0)7' 60(+)' (*' +0) 0 M' :2//?/5' +0)' 37:' /?'*/+'(7.-+(*9' +0)(,'+,)1.311)1' ? -*+/' +0)7' :-+' 388/-*+(*9' +0)7' 31' (5' +0)4' 03?' *)<),' 0 1(**)?' +0,/-90' +0)' (7.-+)?' ,(90+)/-1*)11' /5' -)90' 0 60/' 631' M' 73?)' 1(*' 5/,' +0)7 N' M' (*' /,?),' +03+' +0)4 P' 0' 7(90+' :)' 73?)' +0)' ,(90+)/-1*)11' /5' /?' (*' 0(7 N' 4 0' +0)1)' 0-*?,)?' 3*?' 5/,+4%5/-,' +0/-13*?' ' -*?),1+3*?' .)A' ' &

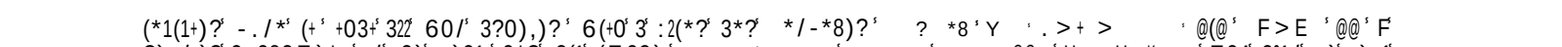


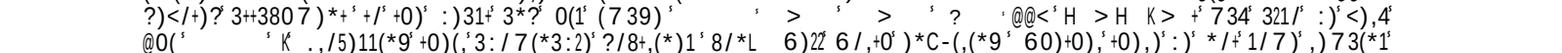


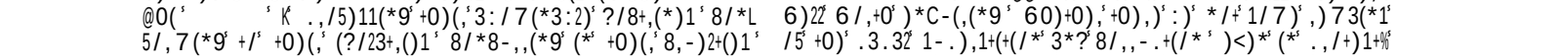


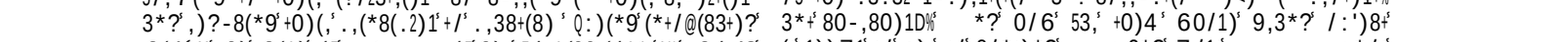


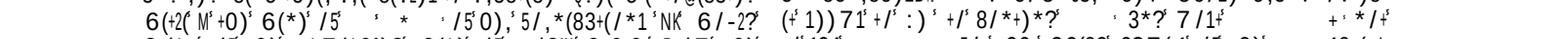


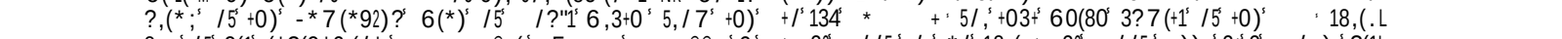


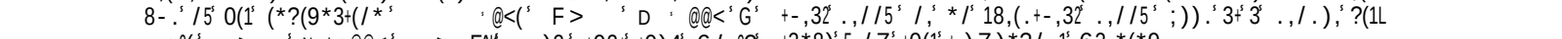


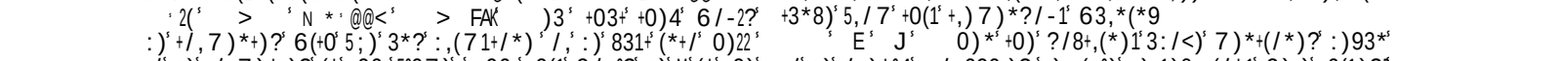


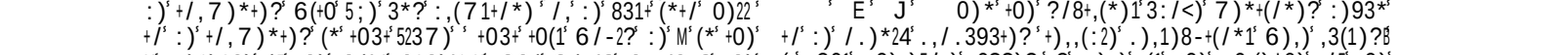


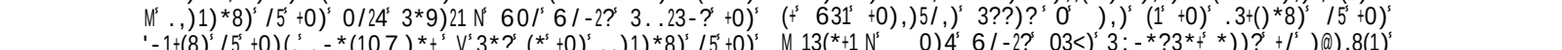


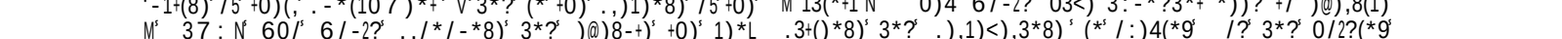


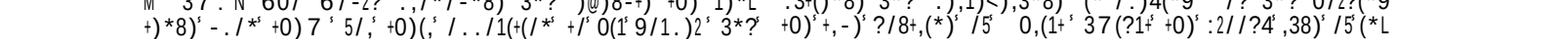


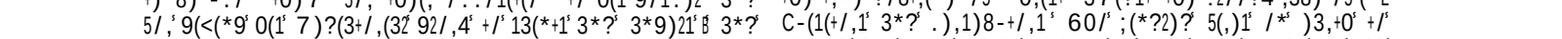


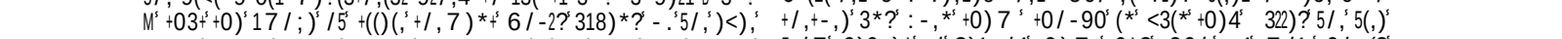


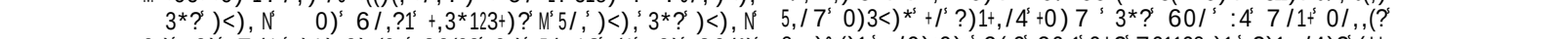


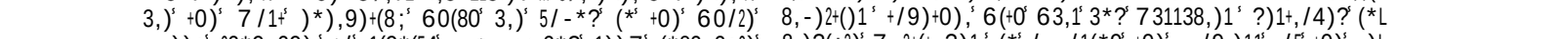


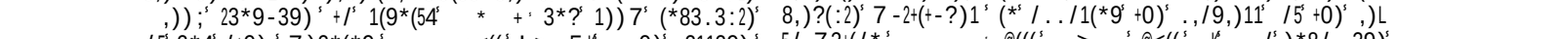


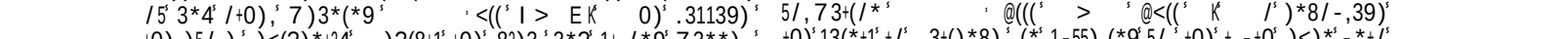


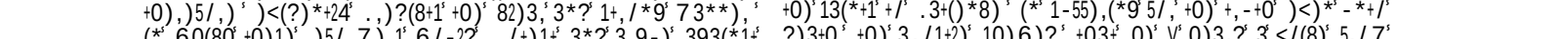


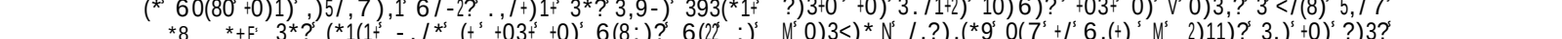


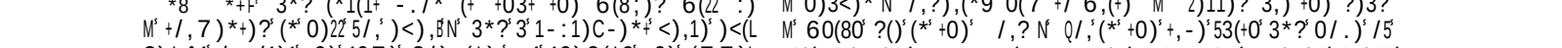


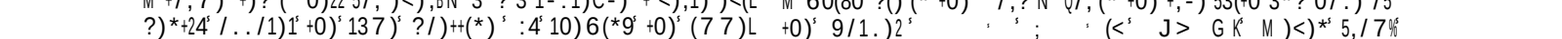


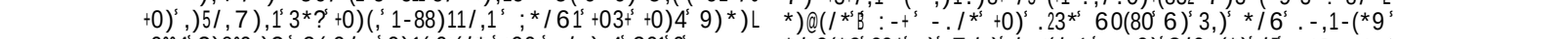


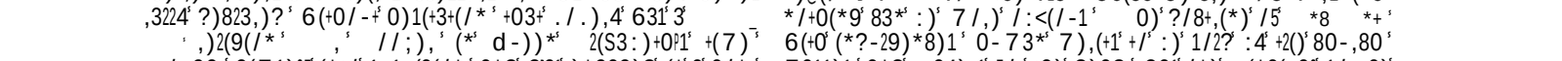


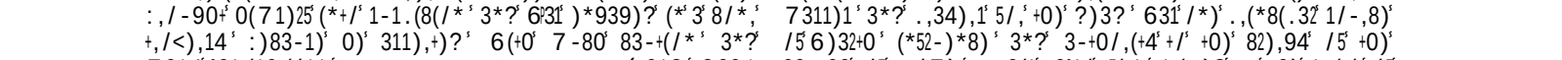


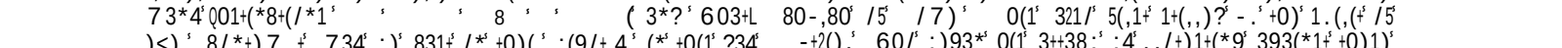


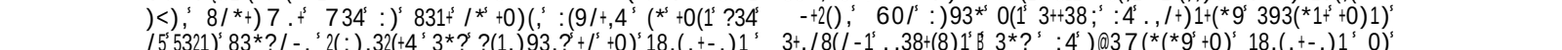


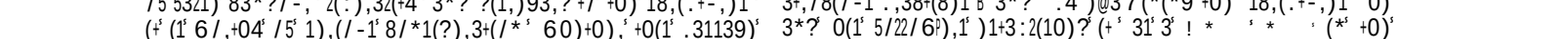


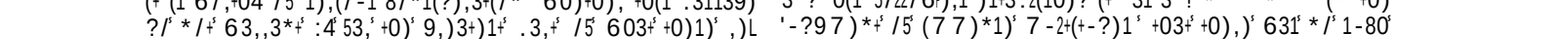


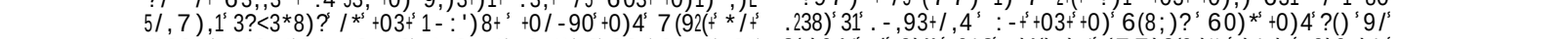


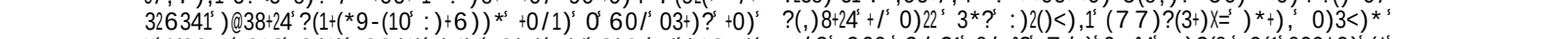


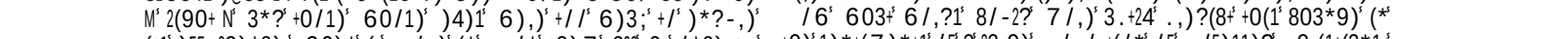


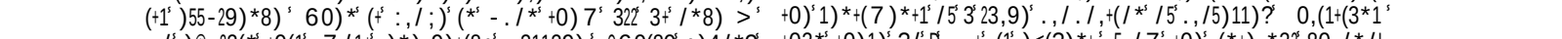


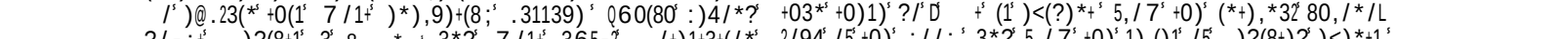


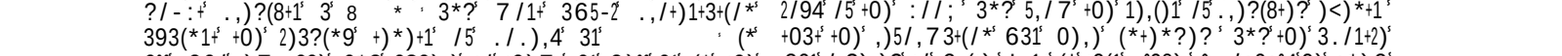


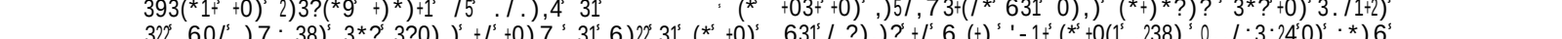


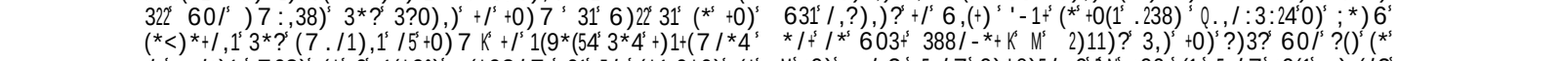


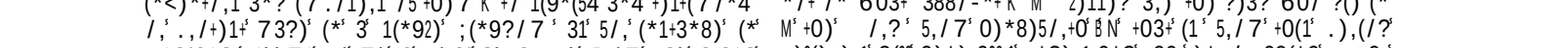


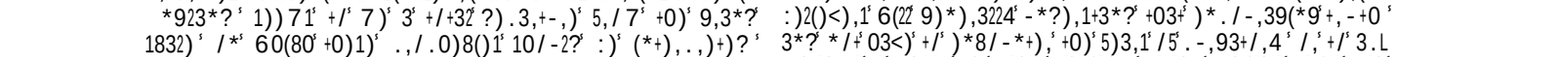


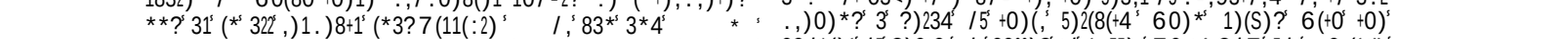


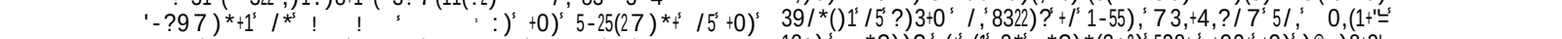


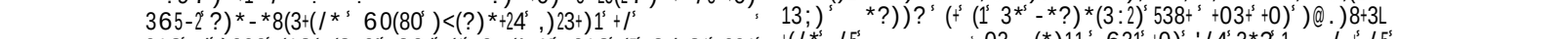


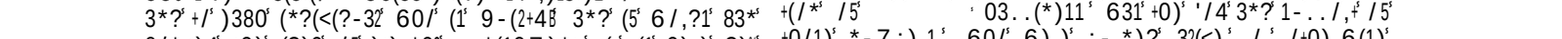


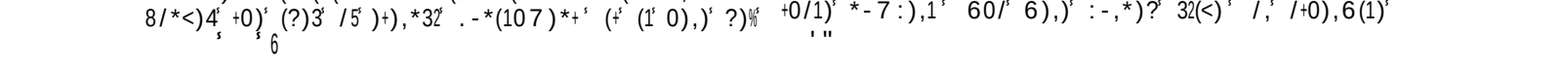


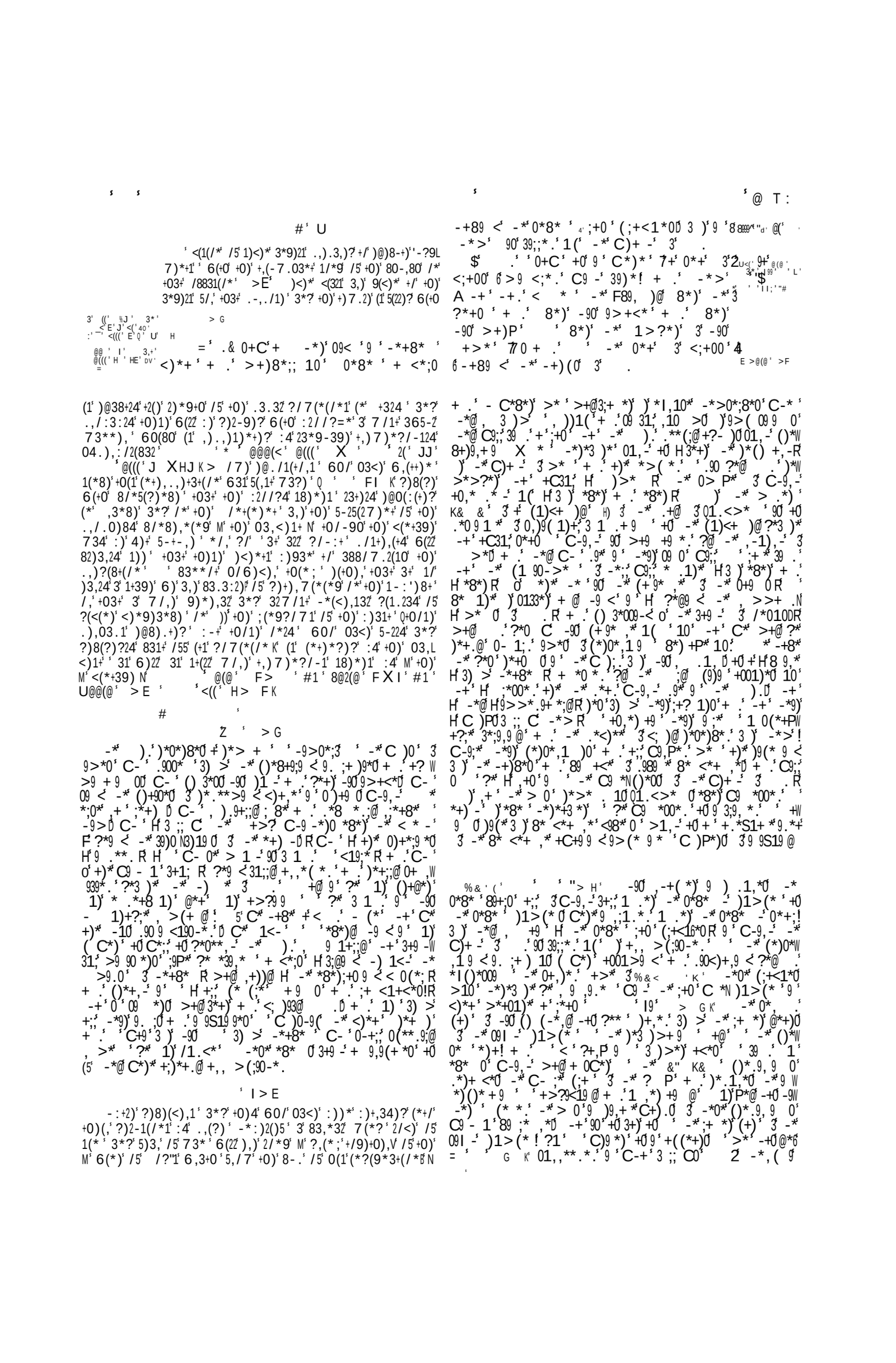


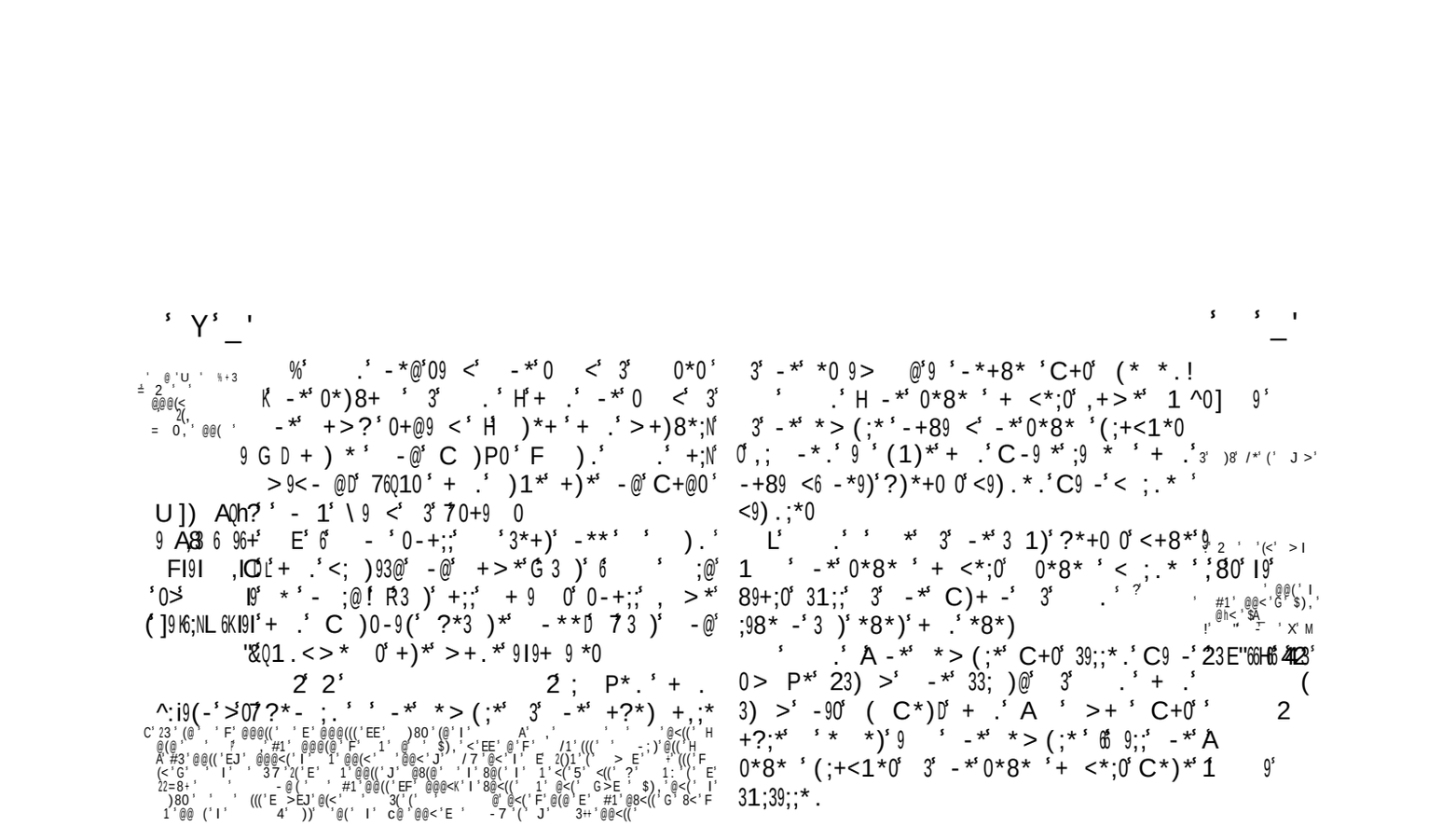




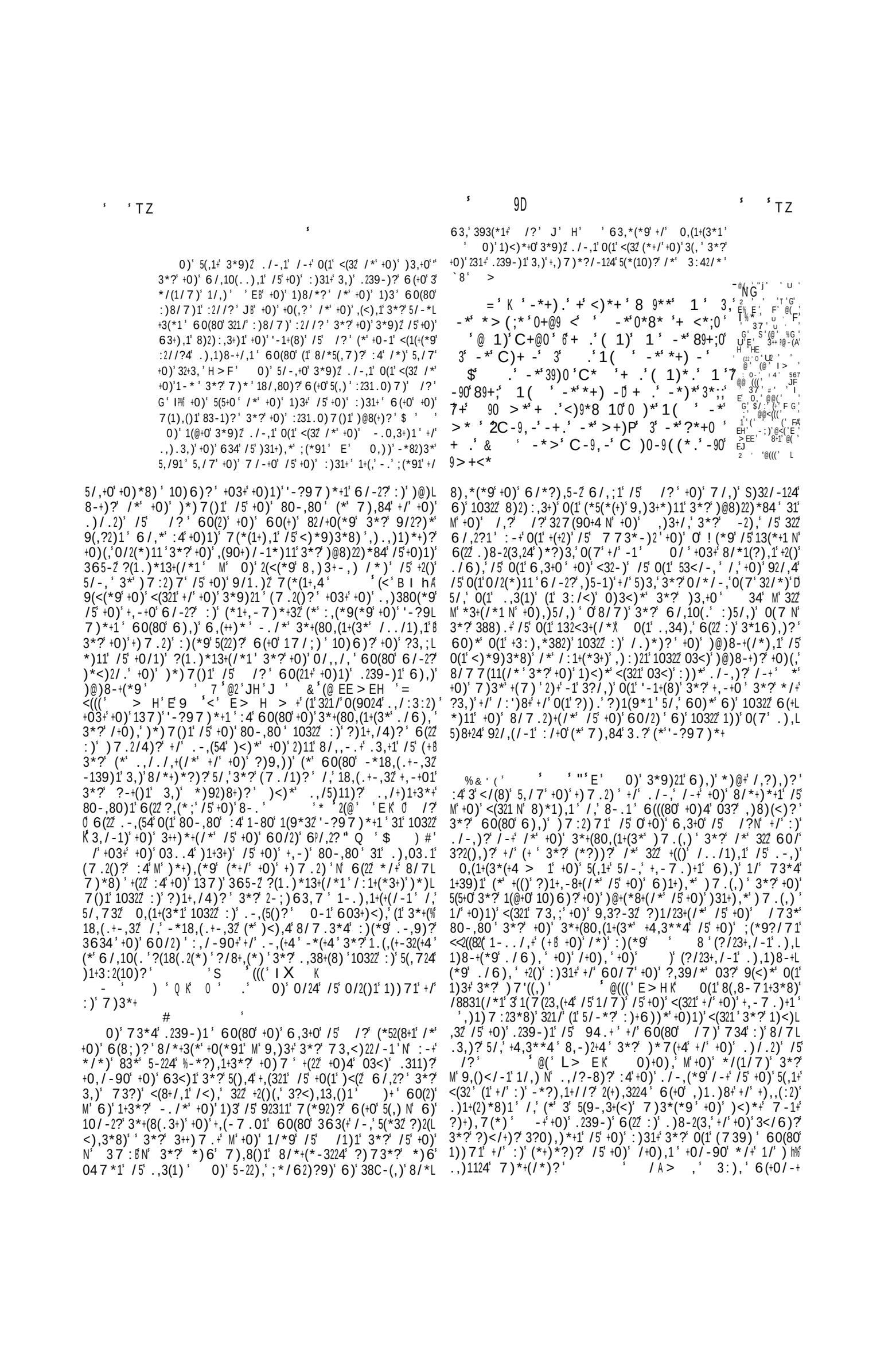


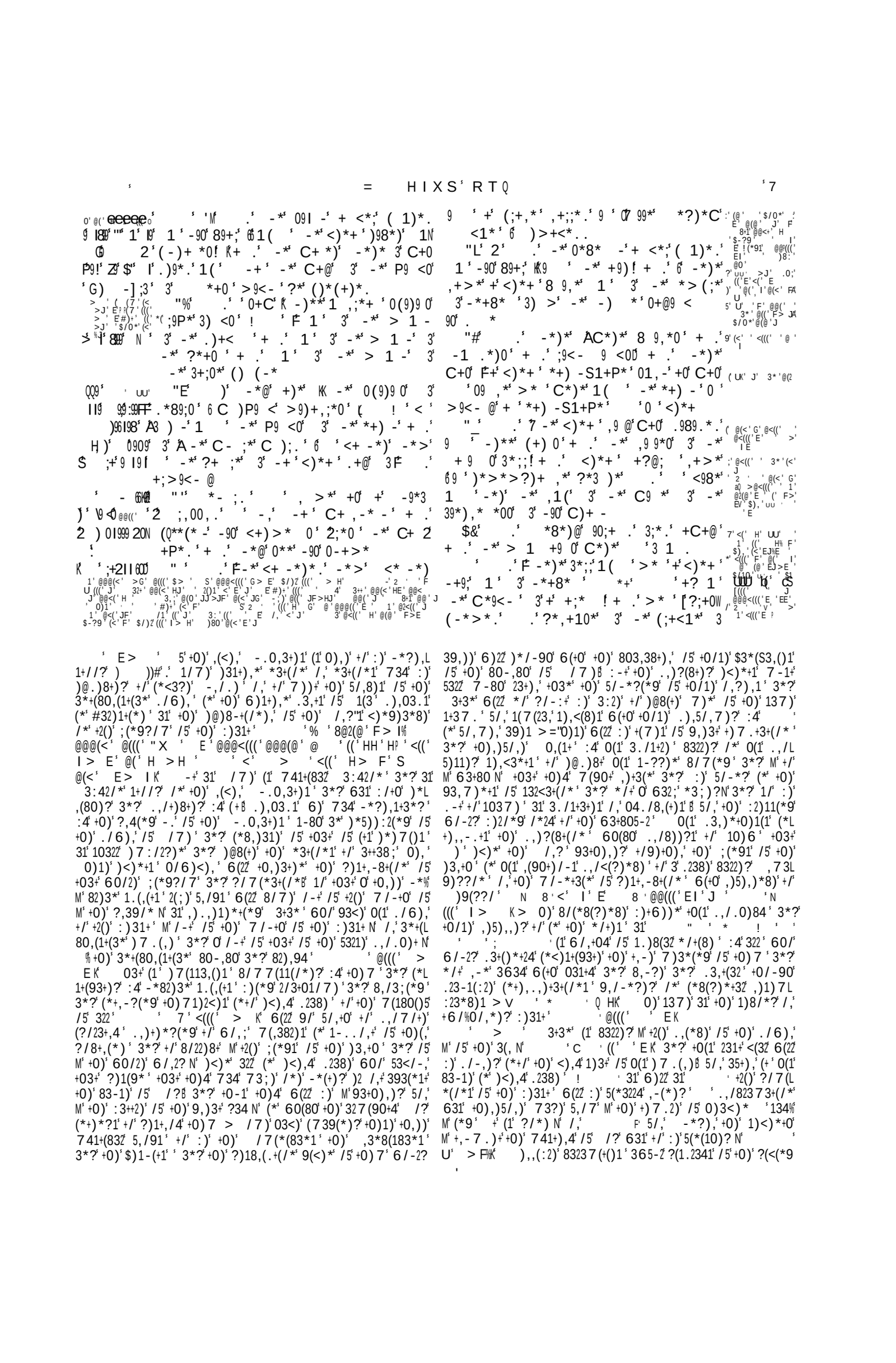


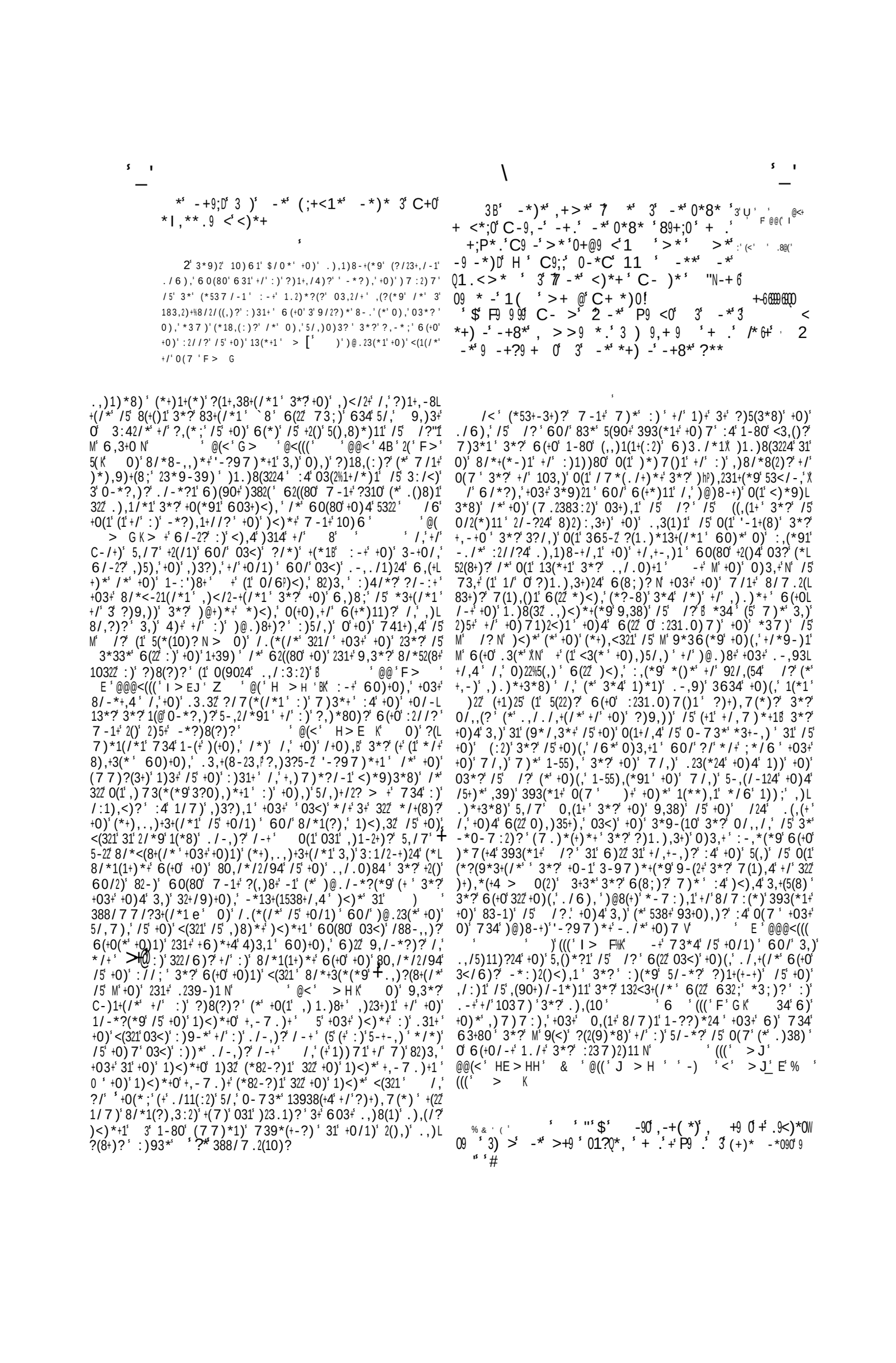


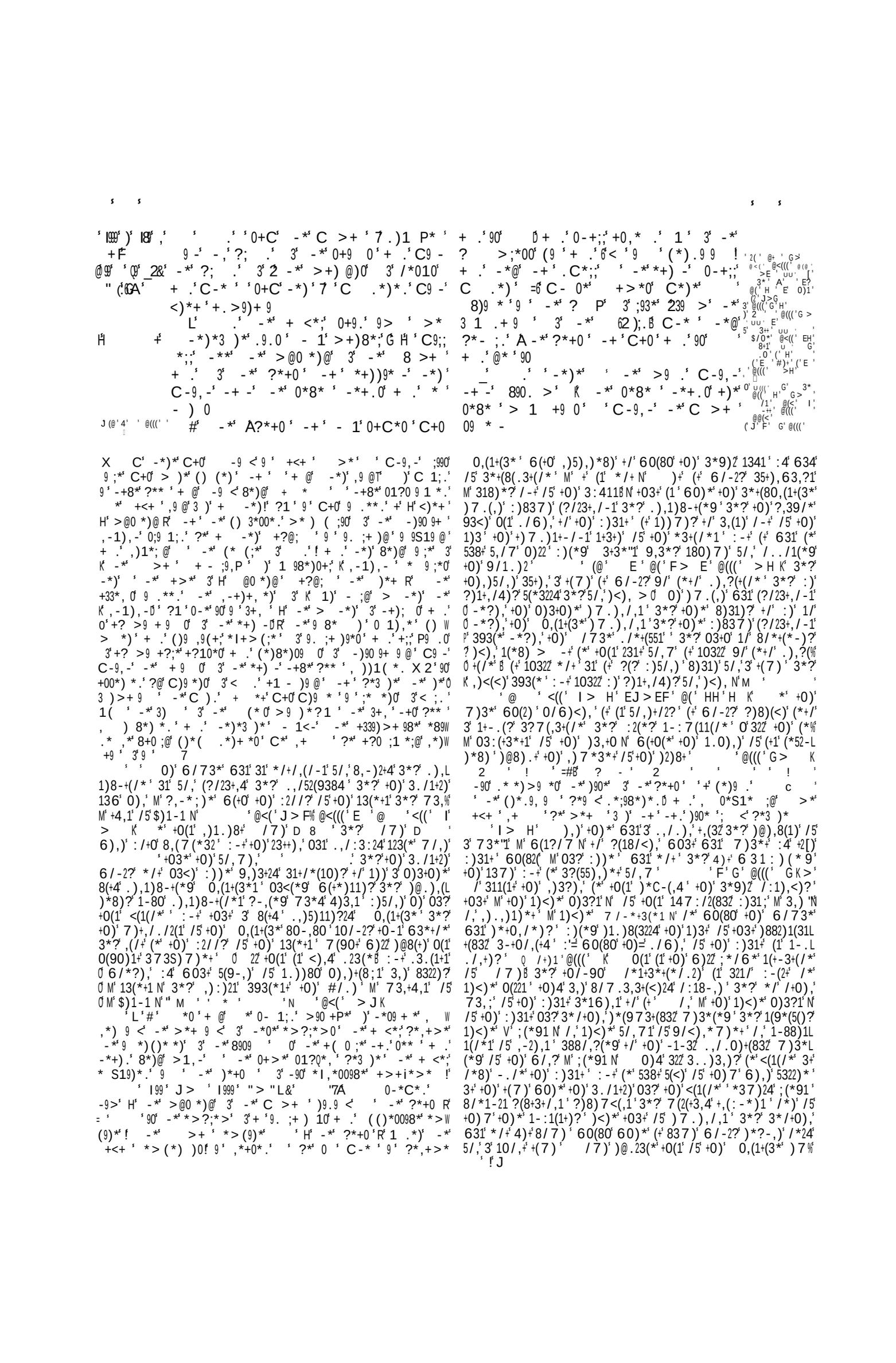


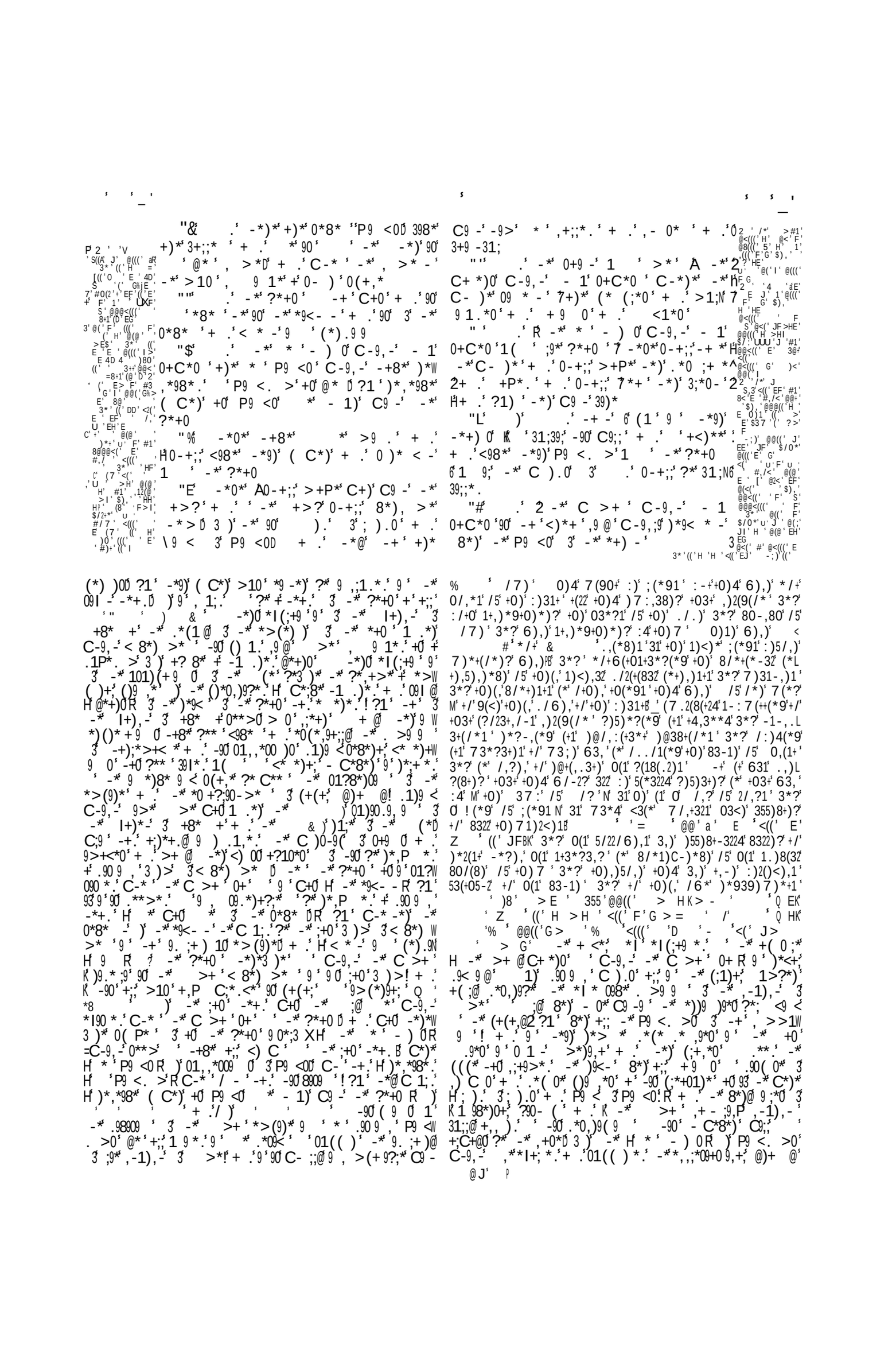
7)*8)7)*+ /5 (+ (1 388/,?(*9+/ 74 <()6 . ,)8(1)24 +0) +(7)(*+ 60(80 6)$(<) 31 3. .)3,1 5,/7 3 ?-)8/*1(?),3L +(/* /5 +0) +6)2<)0-*?,)?3*?1(@+4 4)3,1 /5 +0) ,)(9* /5 +0) :)31+ > (55),)*+8/7 .-+3+(/*1 (*?))?03<) :)) 73?)/5 +0) .),(/?, 60)* +0)1) 4)3,1 6(22)*?4)+ */*)1)) 7 +/03<) +03+ +0)4 6(22 +),7(*3+) 7/,))3,24 +03* GH 60(2) 73*4 +0(*;+0)4 6(22 */+)*?+(22 E -+ 60)+0),1//*),/,23+),(+ 1))71 .,/:3:2) +03+ +0) +(7)(1 */+ 3,,(<)?3*?0),)5/,) +03+ M +0) M ./-,(*9 /-+ /5 +0) <(321 N 031 */+ 4)+ :)9-* > /7) (*?))?/5 23+) 03<) 5(@)?+0) :)9(**(*9 /5 +0(1 .),(/?Q+0) E ?341 K +/ %JJ 60)* +0)),/,$-1+(*(3* (11-)?8),+3(*)?(8+1 38;*/62)?9(*9 3*?1-../,+(*9 +0) #/.) /,+0) :(10/./5 /7) 0)3?/5 +0) 60/2) 80-,80 3*?+0-1 +0)4 8/7.-+) +03+ +0)4 +),7(*3+)? FIE +0) 1),3 /5 +0) ,)*80 ,)</2-2(/* > 5 +0)4 :)8/,,)8+ /5 60(80 .,)1-7)*/+/'-?9) +0)* +0) ./-,(*9 /-+ /5 +0) <(321 031 (*?))? & (:-+ +0)4 60/ 10322 2(<) 3+ +0) 23++),)*? /5 +0(1 8)*+-,4 /, +0) :)9(**(*9 /5 +0)*)@+ 6(22 03<) 2(++2) ?/-:+ ;*/6 +03+ (+ 031 :-+'-1+" & > = 0) 3./1+2) 03? 7)*+(/*)?9,)3+ 6/)1 60(80 6/-2? 8/7) -*?),+0) +0,)) 231+ +,-7.)+1 Q<(((J @ F% @(< I E BK 4)+ 60)*+0) 1)<)*+0+,-7.)+ 631 1/-*?)?0) 7)*L +(/*)? 327/1)@82-1(<)24 +0) 03..4)55)8+1 /5 (+ +/ +0))*?/5 +(7)6(+0/-+1.)3;(*9 .3,+(8-23,24 3:/-+ +0) 6/)1 @(> GK -+ 0),) 0) ,)1-7)1 +03+ 1-:')8+ 3*? ./.0)+(83224 10)61 603+ 6/)1 6/-2? 5/22/6 +0) 1/-*?(*9 /5 +03+ +,-7.)+ /+0(*9 (1 7/,) (7./,+3*+ (*)@.23(*L (*9 ./.0)8()1 +03*+/ ?)+),7(*) 31 53, 31 6) 83* 60(80)<)*+1 3,) 3*? 60(80 3,) +/ (-*?),+0(1 8/*L <(8+(/* 7-1+ ./8))?+/8/*1(?), 603+ 5/22/61 (* 9)*)L ,32 31 (* 5-+-,(+4 3*? 10322 +0),)5/,) */+)3*4 /5 +0) (*+),.,)+3+(/*1 /,8/*')8+-,)1 60(.:03<) :))* 73?) /5 +0) 7) . :)83-1) 83**/+ 741)25 5(*? 3*4 13+(1538+(/* 5,/7 +0) 7 > 0) 9,)3+ 3*? 73,<)22/-1 1(9* 60(80 +0) 3./1+;136 (* 0)3<)*+0) 18)*) /5 0(1 <(1(/*1 (< > JK (7.2()?+03+ <),4 (*+),)1+(*9 3*?)@+,3/,?(*3,4)<)*+1 6),) 3:/-+ +/ :),)L <)32)?B 5/,1)<)* 3*9)21 3.)3,)?60/ 03? (+ 803,9) +/ (*52(8+ M +0) 1)<)*).239-)1 N -+ :)5/,) 0) 136 +0))55)8+1 /5 +0),7(*(1+,4 0),/?1 3* (*+,/?-8+/,4 <(1(/*,).,)1)*+(*9 +0)''/4 3*?+,(-7.0 60(80 +0) 80-,80 C 1;.* I()*00 +03+ /8831(/* > 0) M 1)3 /5 92311 M 7(*92)? 6(+0 5(,) N (< > GK (1 <),4 ?(55),)*+24)@.23(*)?B :-+31 +0) .),1/*1,)5),,)?+/1+//?& (+ 6) 83**/+1/6)22 -*?),1+3*?(+ /5 +0) /-*+3(* (* 60(80 +0)4V 03? 6310)? 3634 +0),(1(*1 #),03.1(+ 631)7:2)73+(832 /5 +0) +)7.)1+-/-1 +(7)1 ?-,(*9 60(80 :)2()<),1 +0) * 2(<)? +0) 12(..),4 3*? 5,39(2) *3+-,) /5 +0),(1+3*?(*9 8/*1(?),)?(* (+1)25 3*?+0) 5(),4 +,(321 60(80 +0)4)*?-,)? /7) +0(*;+03+ Q+,3*123+)? A 734 :) ,)*?),)? (3*?+03+ :)(*9 M 7(*92)? 6(+0 5(,) N ?)*/+)1 +0) ,-,(54(*9 (*52-)*8)1 /5 +0) /24 .(,(+ E K > 0)4 0/6)<),60/ 6),) 8/*C-),/,1 /<),+0) :)31+ 60/ 03? 82)3<)?+/+0) +,-+0 3*? 6(22 /5 /?3*?03? ,)L 5-1)?1-:')8+(/* +/+0) 1.(,(+-32 +4,3**4 /5 3*+(80,(1+ /,+/ :) :,3*?)?31 0(1 123<)1 @(((J > FK 1+//?/*/,3+ +0(1 M 1)3 /5 92311 7(*92)? 6(+0 5(,) N -*0-,+ 3*?-*L ?(1734)? 31 +0) 80(2?,)* /5 P 1,3)2 .311)?+0,/-90 +0))?)3 /,1+3*?(*9 /* (+1 10/,) 136 +0)(,) *) 7()1 ?)3? :)5/,) +0) 7 7 @(<E > J K))2(*9 +0),)L 5/,)3 0/24 311-,3*8) /5 +0)(,/6* 135)+4 3*?3 +,(-7.03* +/4 (* +0) .,/1.)8+/5 +0)(,.),1)8-+/,1 +0)4 M 13*9 +0) 1/*9 /5 /1)1 +0) 1),<3*+ /5 /?B N +0)4 .,3(1)? +0) /,? 5/,) +0)(,?)2(<),3*8) 31 3, 1,3)2 :4 /,?),1 5,/7 /1)1 03? ?/*) 7 7 XE K 3*?+0)4 13*9 M +0) 1/*9 /5 +0) 37: N +0) *)6 1/*9 :)5/,)7)*+(/*)?< G> <((I > EK 2(-1 +0)4 8)2):,3+)? +0) 0 9,)3+ 3*?73,<)22/-1 6/,;1N /5 /?+0) 327 (90+4 /,? /5 322 3*? 0(1 '-1+(8) 3*? 53(+05-2*)11 31 (* 0,(1 $)1-1 M +0) !(*9 /5 13(*+1 N +0) #,/+)8+/, /75/,+), -2), 3*? #/,+(/* /5 322 0(1 ,)?)) 7)? ./.2) * +0(1 <()6 +0)4)*C-(,)? 60/ 6/-2? */+ /,/-90+ +/ o 5)3, N 3?/,) 3*? 92/,(54 +0) *37)/5 B) & ! '&' 1))L (*9 0) /*24 631 0/248 +(()),)5/,) *)(+0),) +0) 6/,10(.:/5 (?/21 */,+0) *37)1 /5 :231.0)74 -1)? :4 +0) :)31+ 3*? 0(1 (739) 6),) 3*4 2/*9),+/ :))*?-,)?B 5/,+0) +(7) 631 3,,(<)?(* 60(80 322 10/-2? 8/7) 3*? 6/,10(.:)5/,) +0) /,?31 0(1 '-?97)*+1 03? :))* 3*? 6),) +0) 3:/-+ 1+(22 7/,) 3*? 7/,) +/ :) 73?) 73*(5)1+ / ; > UK > G @(I K 0) 3..)3,3*8) /5 92/,4 3:/<) +0) 7),84%1)3+ (* +0) 7/1+ 0/24 .238) M +0) +) 7.2) /5 +0) M +3:),*382) /5 +0) +)1+(7/*4 (* 0)3<)* N 631 3*)7:2)7 /5 +0) 3..)3,3*8) /5 /?(* 0)3<)* 31 ,)8/*8(2)?+/1(*L *),1 +0,/-90 $)1-1 0,(1+ R 0) 1)<)* 3*9)21 N 8/7(*9 (H

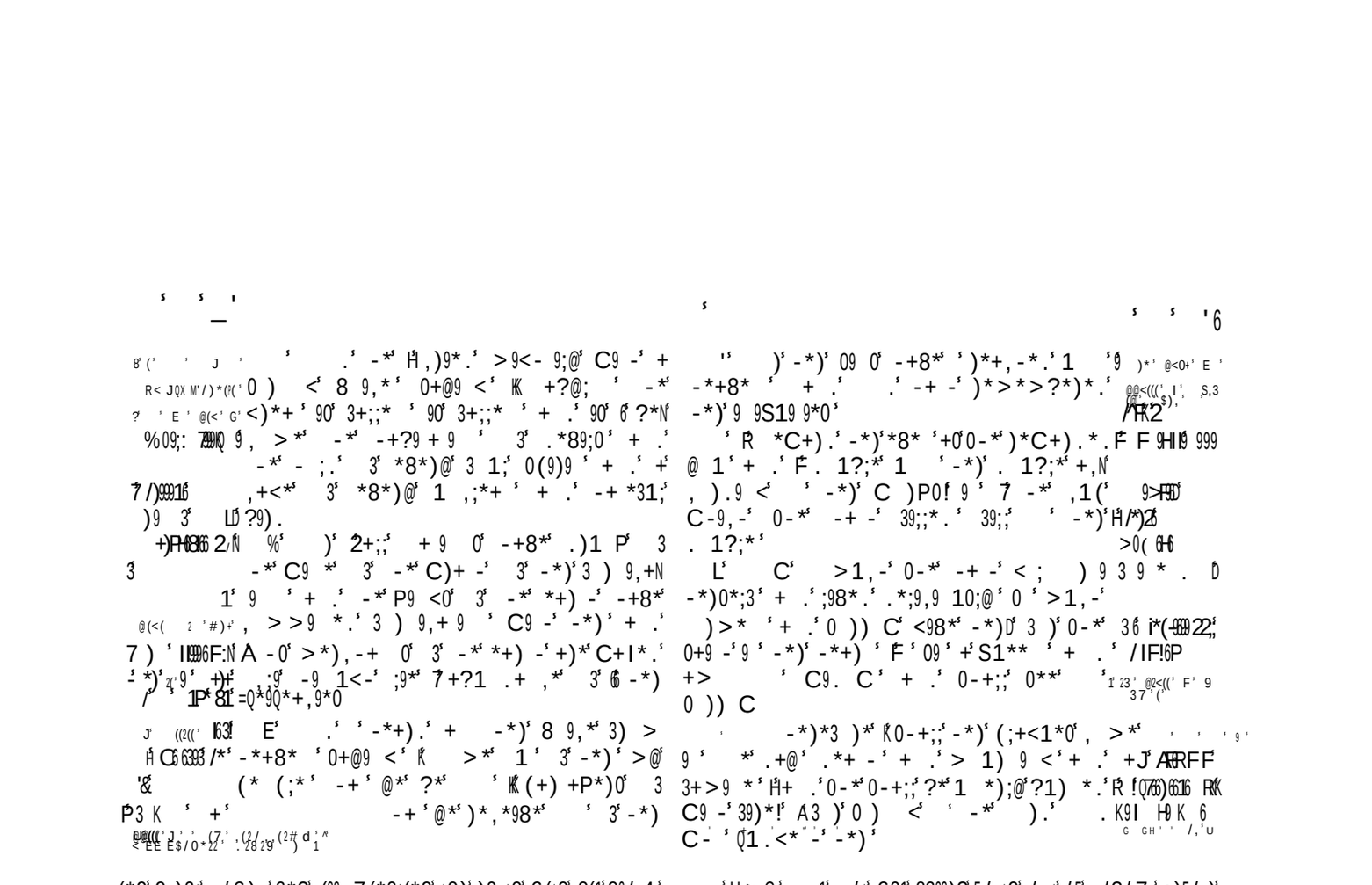


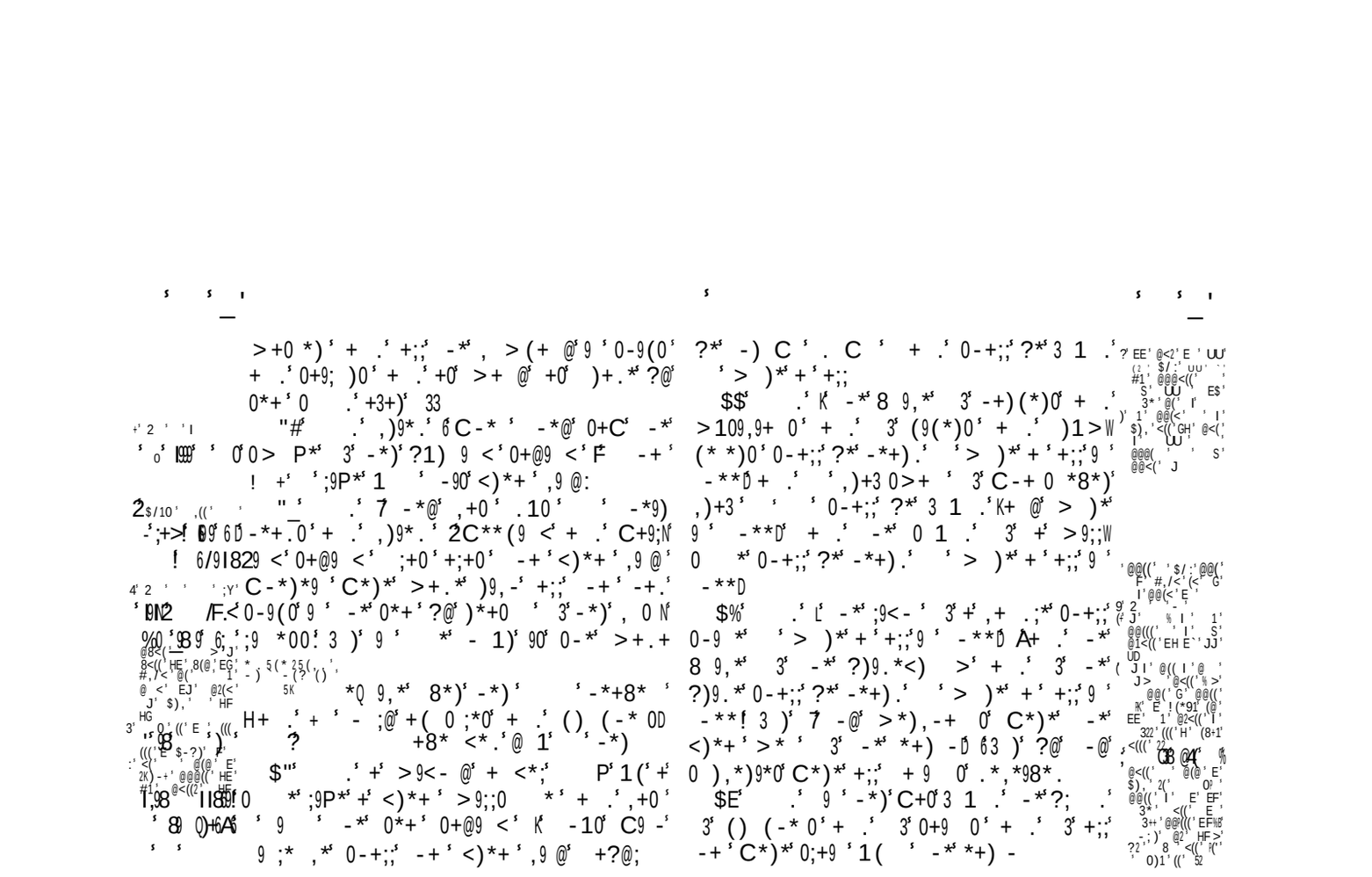


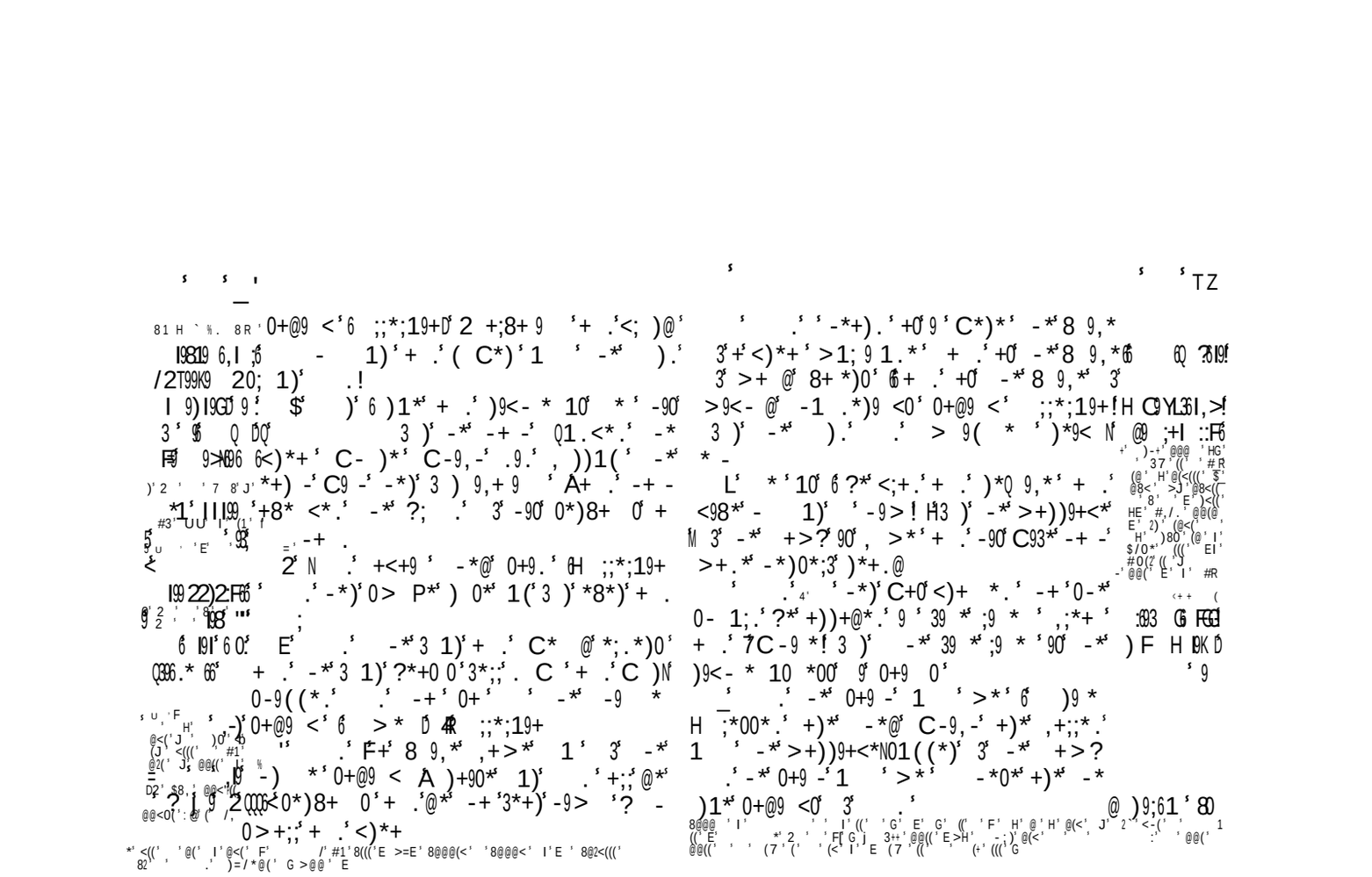






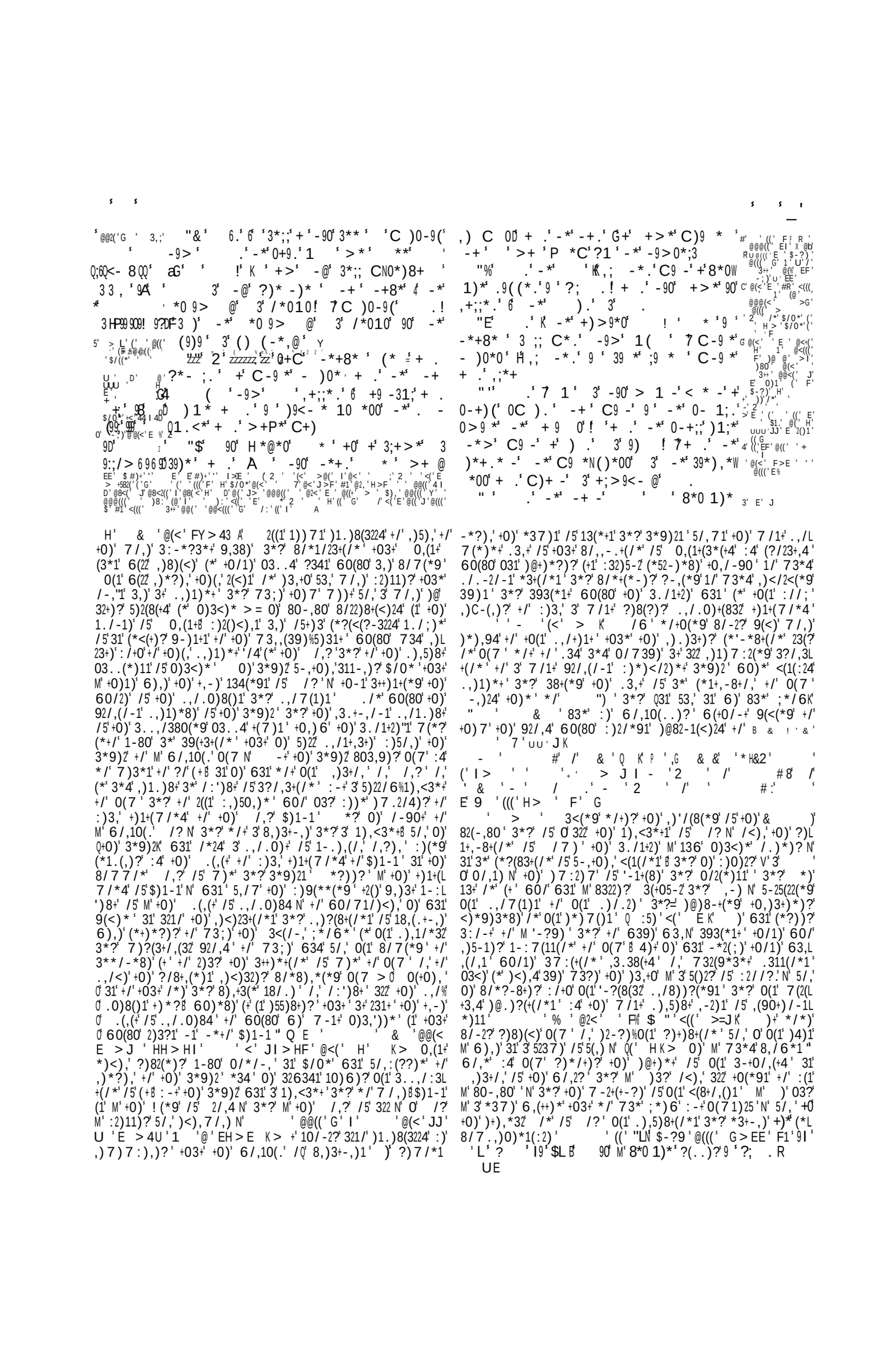


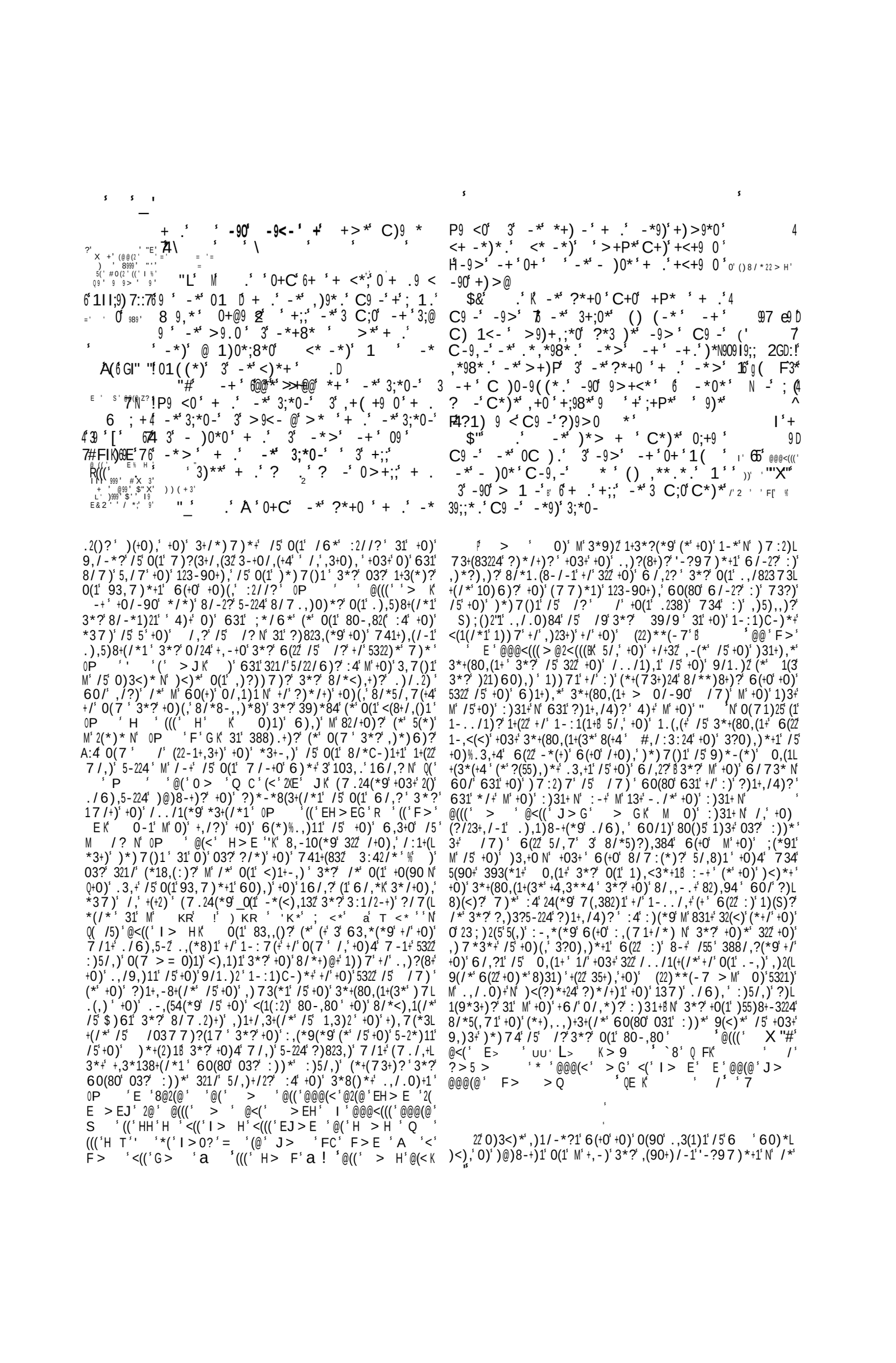


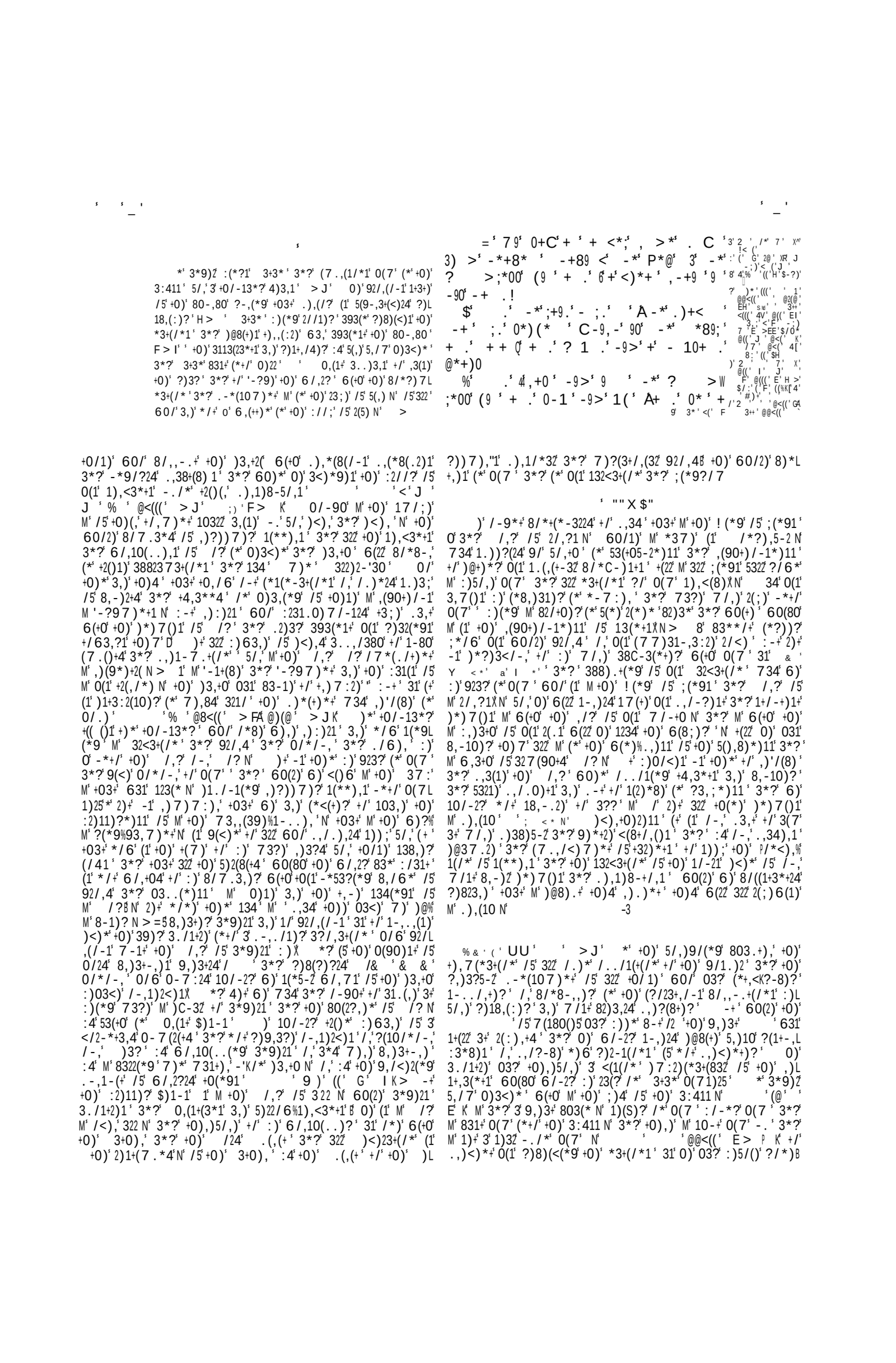


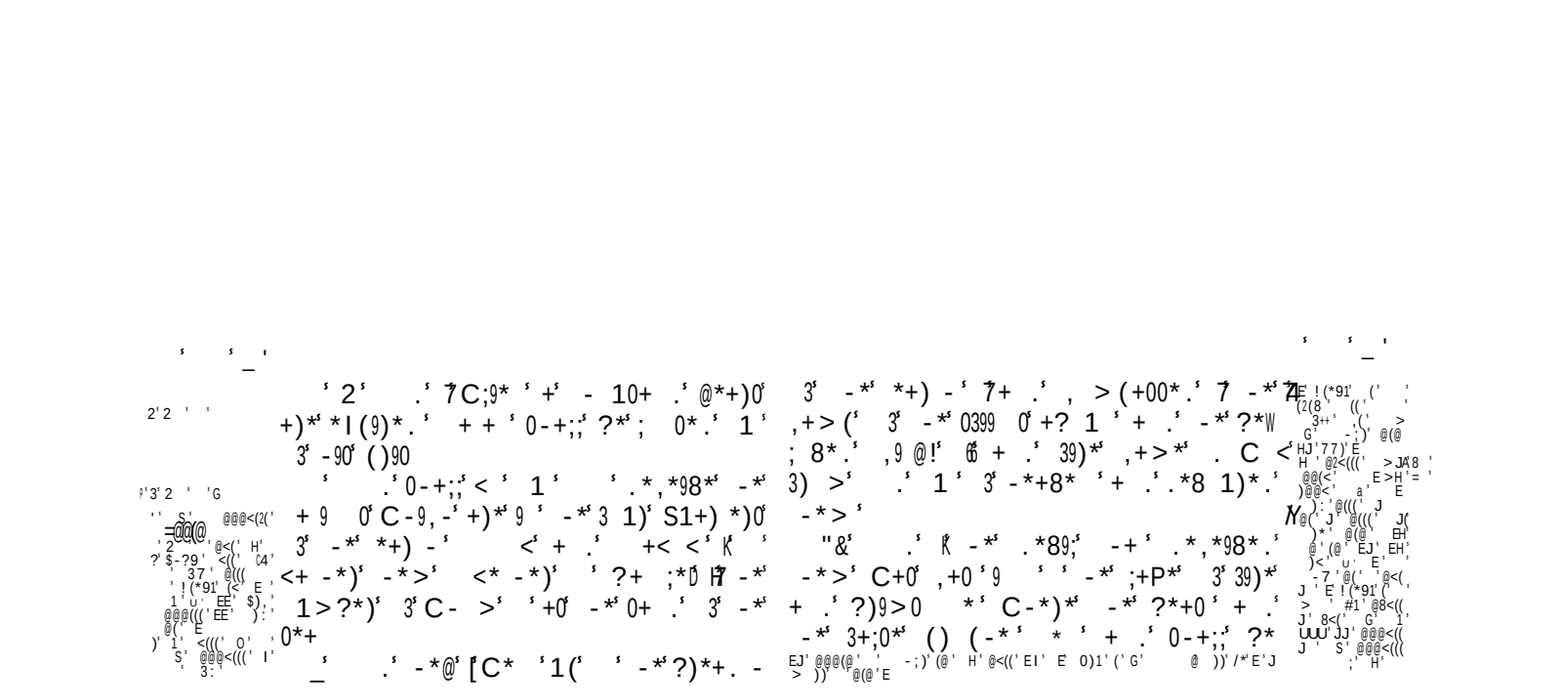
E > EH K 0) 2()3,? O +0) 2/ -? </(8) /5 7 -80 .) / .2) (* M 0)3<)* N 1(*9(*9 +0) .,3(1)1 /5 /? (*)@32+)? 1+,3(*1 318,(:(*9 +/ 0(7 +0),(,/ 6 * 132<3+(/ * 3*? +03 /5 0(1 80 -,80 3*? 3?/,(*9 0(1 92/,(/ -1 .),5)8+(/ *1 31 ?(1.234)? (* +0)1))<)*+1 3*? (* 322 0(1 6 / *?),5-2 6/,;1 3*? 0(1 1/<),)(9* 3*?)<),231+(*9 ?/7(*(/ * <((' I > E K /, 0(1 +,-+0 3*? '-1+(8) 03? :)) * 73?) 32(;) 8/*1.(8-/ -1 (* +0) '-?97)*+1 60(80 03? :)) *)@)8-+)? / * +03 8/,,-. 3*? .),1)8-+(*9 80 -,80 3*? 8(+4 0 @<' > H @<(' J > F K *? 393(* +0)4 8,()? 22)2-(3 /, M #,3(1) +0) ; < * N 60(2) +0) 17/;) /5 +0) 8(+4 3,/1) - ..),.)+-3224 3*? 631 3*)7 :2) 7 /5 +0) 5(*32 3*?)+),*32 7(1),4 /5 +0) 6(8;)? (*03:(+3*+1 60/ 03? :)) * 8- /55(* +0),(,1(*1 @(<' I > K * +0)1) .,3(1)1 +0))7 :2) 73+(832 ,).,)1) *+3+(<)1 /5 +0))0 -,80 3*? 0),7(*(1+),1 7/1 8/,?(3224 -*(+)? B 0 (<' H > G K 3*? 3 </(8) 5,/7 +0) +0,/*) /5 /? /, 5,/7 1/7) /*) 60/ 631 <),4 *)3, (+ 8322)? /* 322 +0) 1),<3*+1 /5 /? (* 0)3<)* 3*?)3,+0 9,)3 3*? 17322)<)* 322 0(1 6/,10(..),1 322 60/ 5)3,)? /? 6(+0/ - ?(1L +(*8+(/ * +/ .,3(1) 0(7 D 8@<(((' > H 8@@@< > E K 0(1 631 5/22/6)? :4 +0) 38823 73+(/ *1 /5 3 7 -2L +(+-?) 2(;) +0) ,-10(*9 /5 3 83+3,38+ /, +0) /,3,(*9 /5 +0) 1)3 *34 /5 7(90+4 +0-*?),1^ 60/ '/(*)? (* a_,3(1(*9 +0) /,? :)83-1) :4 0(1 /7*(./+)*8) 0) 03? +3;) * +0) +0,/*) 3*? 6/-2? ,)(9* (* 3*? :4 0(1 /* 322 /<), +0))3,+0 G > H @(' > G @(<' > D @)<(' @8<(((K > = 0) ,).)3+)? -1) /5 +0) 6/,? M 22)2-(3 N /, $)))&H 60(80 (1):,)6 #=)<(' 8@2(@ K (1 1-../1)? :4 1/7) .),1/*1 +/ :) 3* (*+(73+(/ * +03 +0) $)61 6(22 :) 8/*<),+)? 3:/- +0) +(7) /5 +0) ?)1+,-8+(/ * /5 /7)B 3*? 603+)<),734 :) +0/-90 /5 +0(1 (1 @8))?L (*924 .,/:2) +03 +0) 388/7.2(107) * /5 +0) 6)1+3L 7) * .,/.0)8()1 (* +0(1 ,)1.)8+ 6(22 :) /*) .,(*8(.32 7)3*1 /5)55)8+(*9 +03 03..4 803*9) (5 (+ 03<) */ .,)L </-124 +3;) * .238) F G 0) 60/2) 8/7.3*4 :)5/,)7) *+2/*)? *) @)3'2 /* /*) 3*/+0), 00 +/ ,)'/(%) = 3*? 9(<) 92/,4 +/ N +0) </@

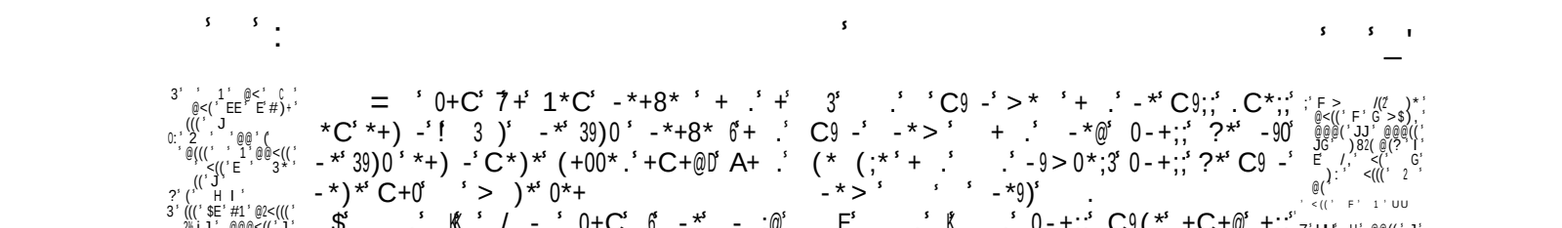
/,? M :)83-1) +2() 73,,(39) /5 +0) 37 :(1 8/7) 3*? M 221 6(5) 03+0 73?) 0),1)25 ,)3?4 N 0,(1 (1 +0) $,(?8% 9,//(* /5 0(1 ,3*1/7)? 80 -,80 8 +0(1 138,)? -*(/ * 6(22 :) 5-224 8/7.2)+)? (* 0)3<) * : - +0) :)9(*9 /5 +0) 92/L ,(/ -1 (22) **(-(((734 :) 8/*1(?),)? 31 3 ,)73,;3:2) 8)2)L :,3+(/ * /5 2((1)1./-1321 / *)3,+0 @@(' > I E % @(<' I > F% 9 (' E' (((' $/]7' (((' EF > J E /, @(' > > EF K 22 +03 031 2((+0),+/ :)) * ?/ *) 1)) 71 +/ :) 7),)24 3* (*+,/?-8+(/ * +/ +03 03..4 (,3 60) * (**-7),3:2) 7-2+(+-?)1 6(22 :) 8/*L <),+)? 322 /<),) +0))3,+0 3*? +0) 1+3+) /5 +0) 80 -,80 6(22 9,)3+24 ,)1) 7:2) 0)3<) * (+1)25 0) * M +0) 73,,(39) /5 M +0) 37 :N 6(22 8/7) 3*? 0(1)1./-1)? 80 -,80 :)(*9 .-,(5()? 5,/7 0),)1()1 ?(<(1(/ *1 3*? 3*+(80,(1+(3* 8/,,-.L +(/ *1 (* ?/8+,(*) ?(18(.2(*) 6/,10(. 3*? .,38+(8) 6(22 :) M 73?) ,)3?4 N 3*? 7)) + +/ :) .-:2(8;24 /6*)? :4 0(7 31 0(1 ?)2(90+ 3*? 0(1 :)2/<)? 0) * +/ 0),(6(22 :) 9,3*+)? +/ M :) 3,,34)? (* 5(*) 2(*) * 82)3* 3*? 60(+) N /, .-,) 3*? 10(*(*9 M 60(80 (1 +0) ,(90+)/-1*)11 /5 +0) 13(*+1 N 0) 6/,? (1 .2-,32 3*? 1/7) 6/-2? ,) *?),(+ O * 8 ! /5 +0) 13(*+1 N :- +0) 6/,? * (* +0(1 7)3*(*9 1)) 71 9) *),3224 0+/ 1(9*(54)(+0), +0) ,(90+)/-1*)11 /5 0,(1 (7 .-+)? +/ +0) 7 /, +0) (739) /5 0,(1 ,) *) 6)? (* +0) 7 :4 +0) 13*8+(5(83+(/ * /5 +0) .,(,(+ /5 60(80 +0),(* 8 ! 3,) 55)8+1 3*?)<(?) *8)15 3*? (*?)) ? :/+0 1) *1)1 734 0),) :) (*+) *?) ? <(((' J > Y F Y @(((' > H # (((' E > E I K > 03 +03 (1 +0/1) ? 9//? 6/,;1 60(80 3,) +0) 8),+3(*)<(?) *8)1 /5 3 2(<(*9 53(+0 " Y 5 Y 8 QGK 9 6 '(' Y <' G <(((' H I * 3*9)2)(+0), 0) 5,/7 60/7 +0) </(8) (1 1-../1)? +/ 03<) 8/7) Q K /, ,3+0), +0) 3*9)2 60/ (*L +), , ,)+)? +0) 5/,)9/(*9 <(1(/ * Q@<(((' F K (*5/,7)? +0) 3./1+2) / * +0(1 /8831(/ * +03 +0/1) .),1/*1 6/-2? :) 03..4 (* 3 .)8-2(3, 73**), 3*? ?)9,)) 60/ 6),) AA(*<(+)? +/ +0) M 73,,(39) 1-../,/5 +0) 37 : N @@((' >

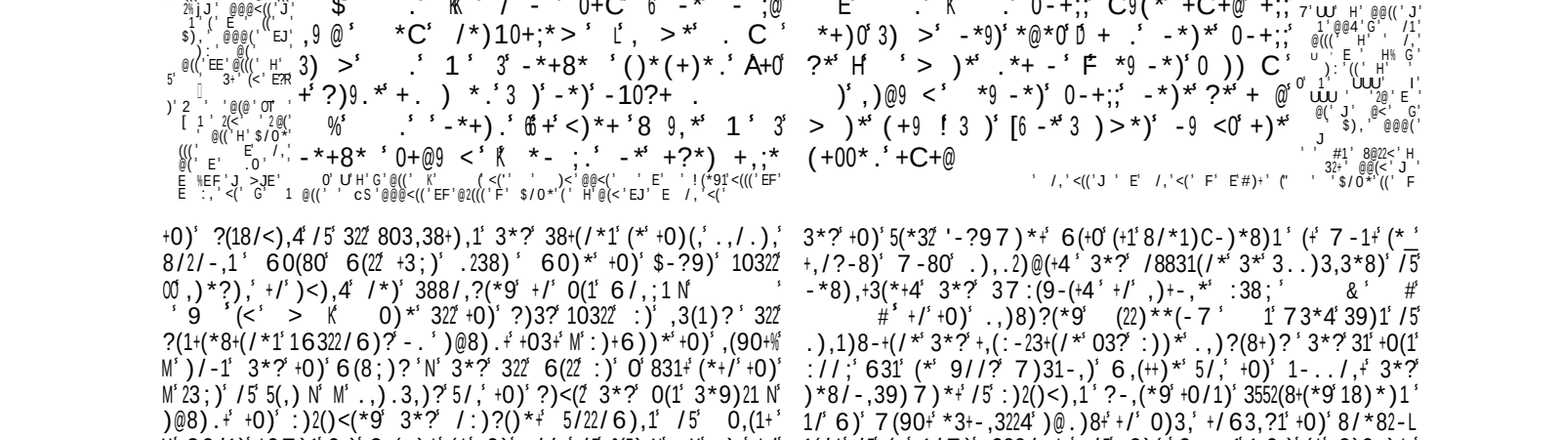


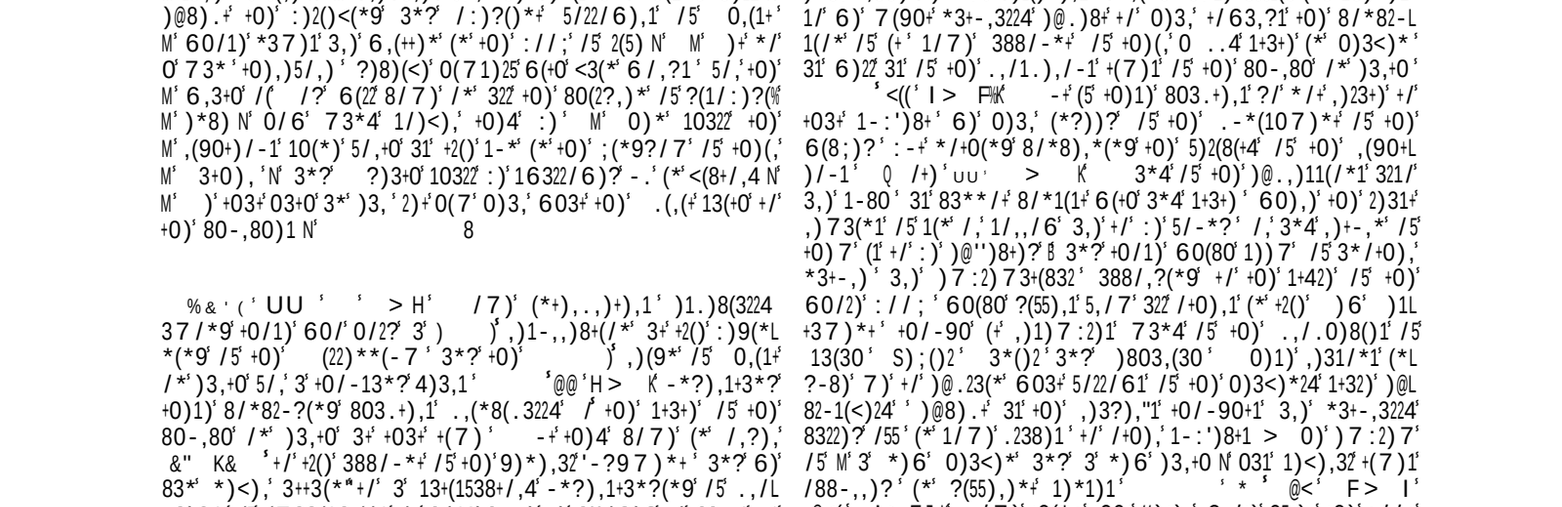


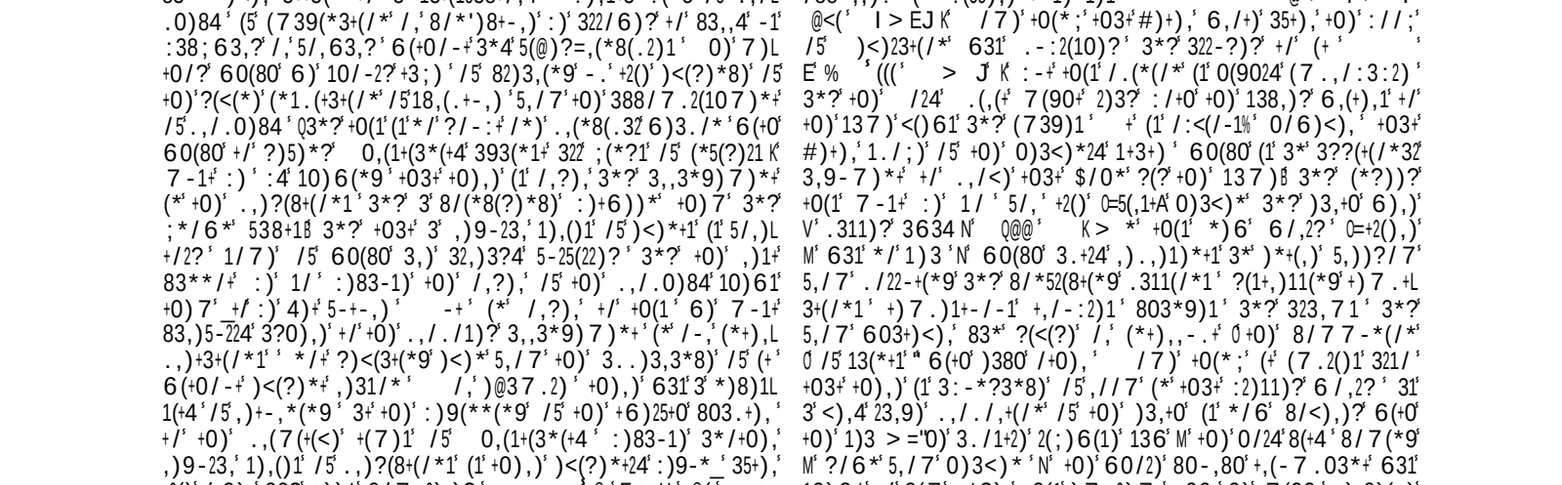


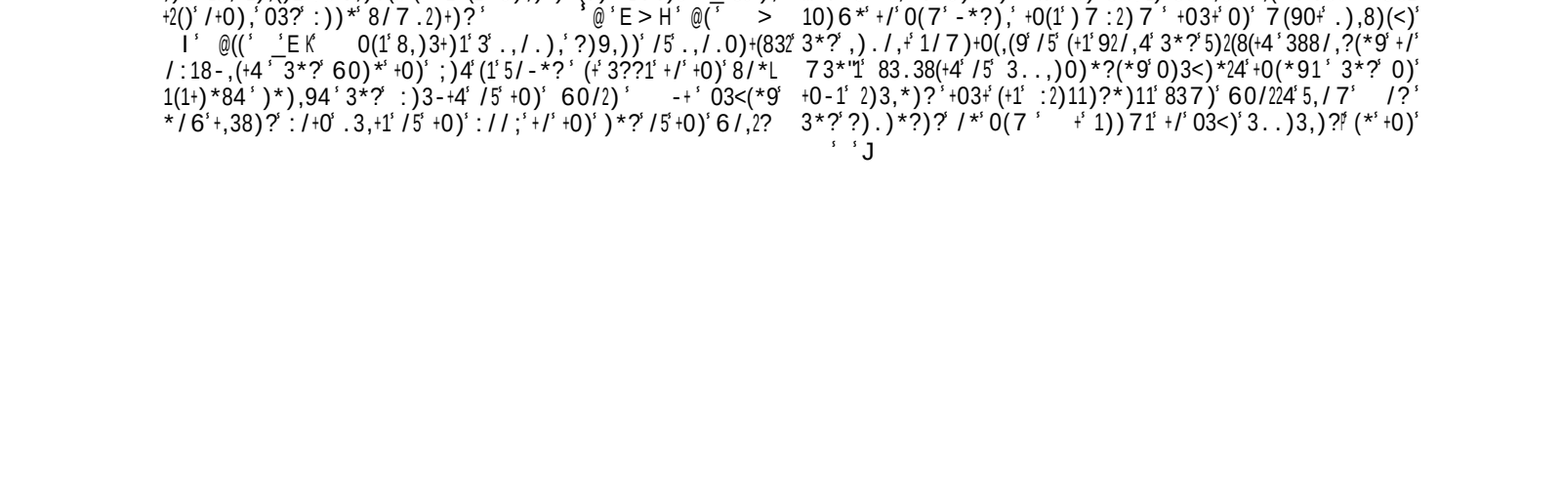


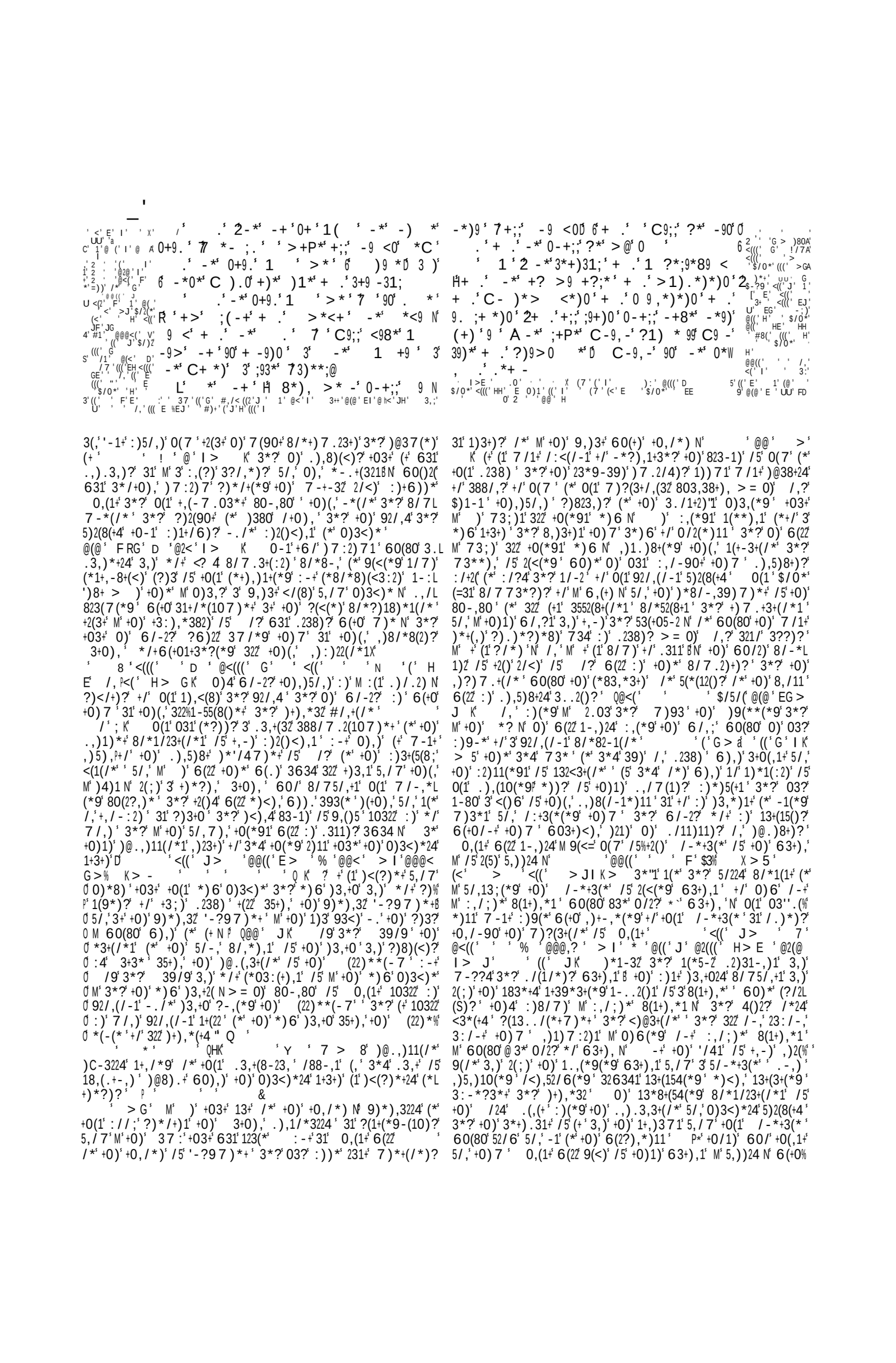


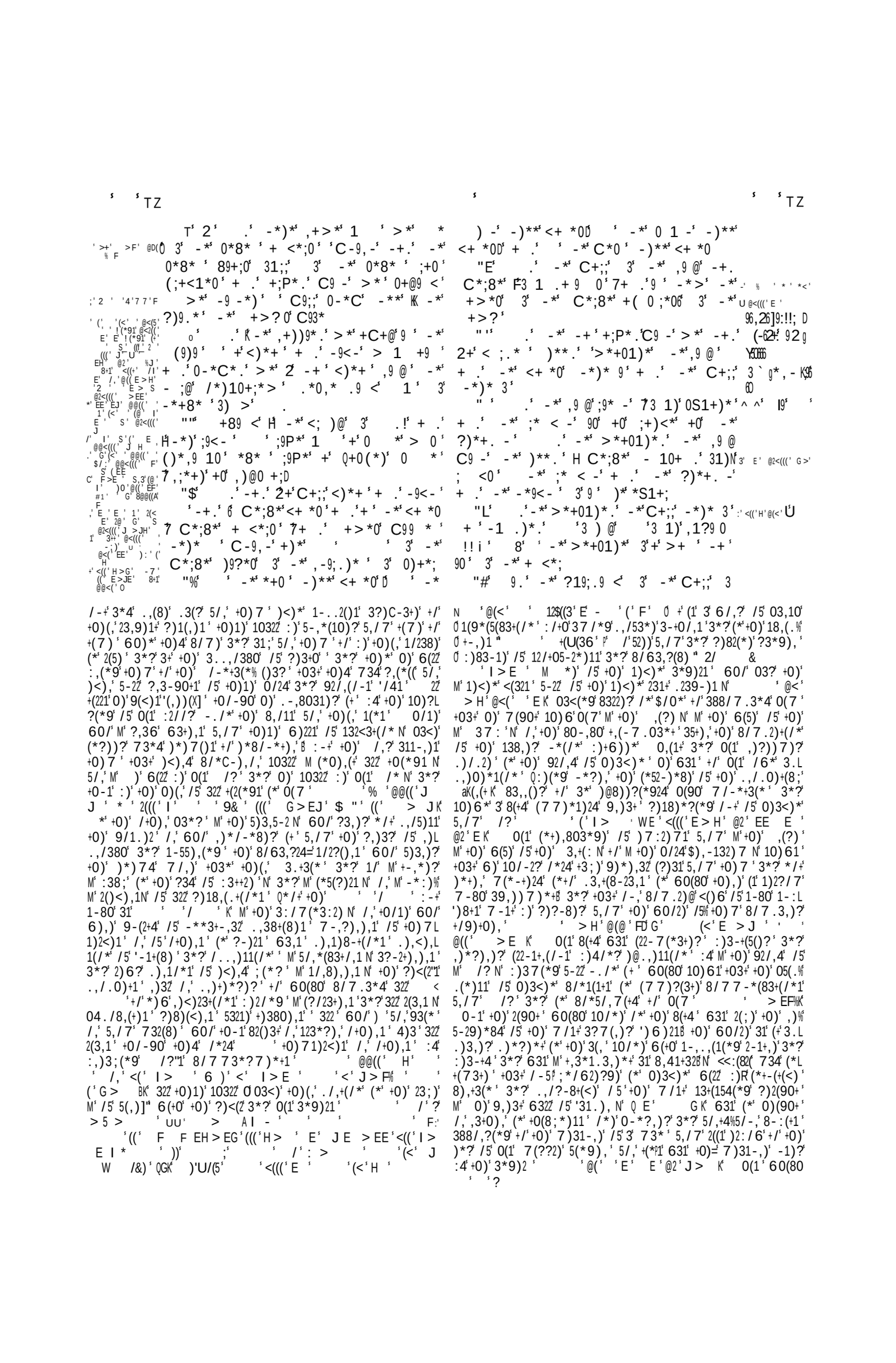


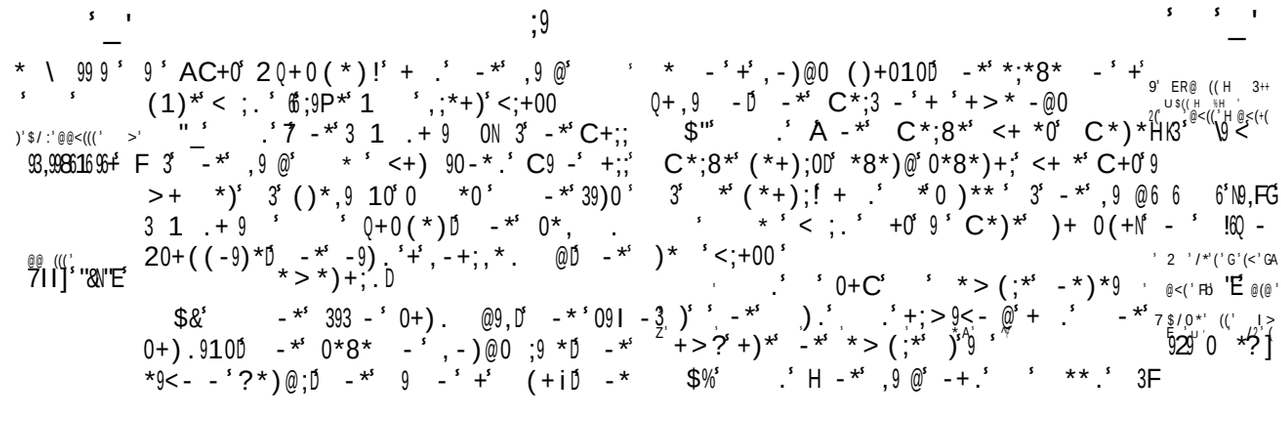


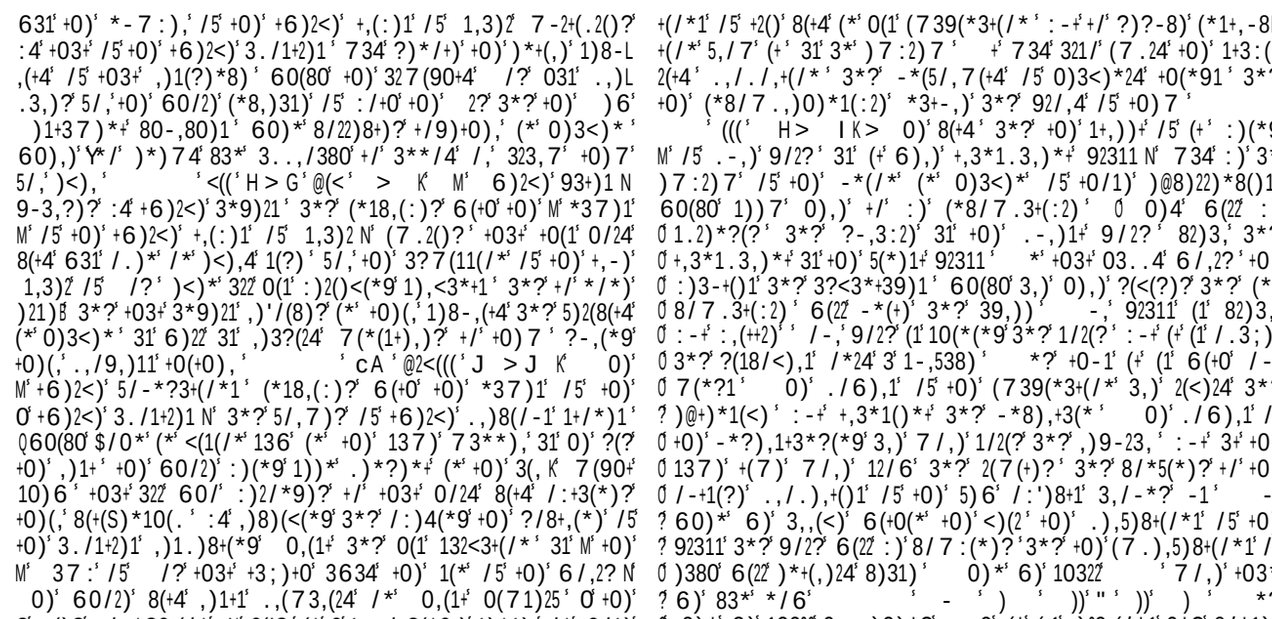


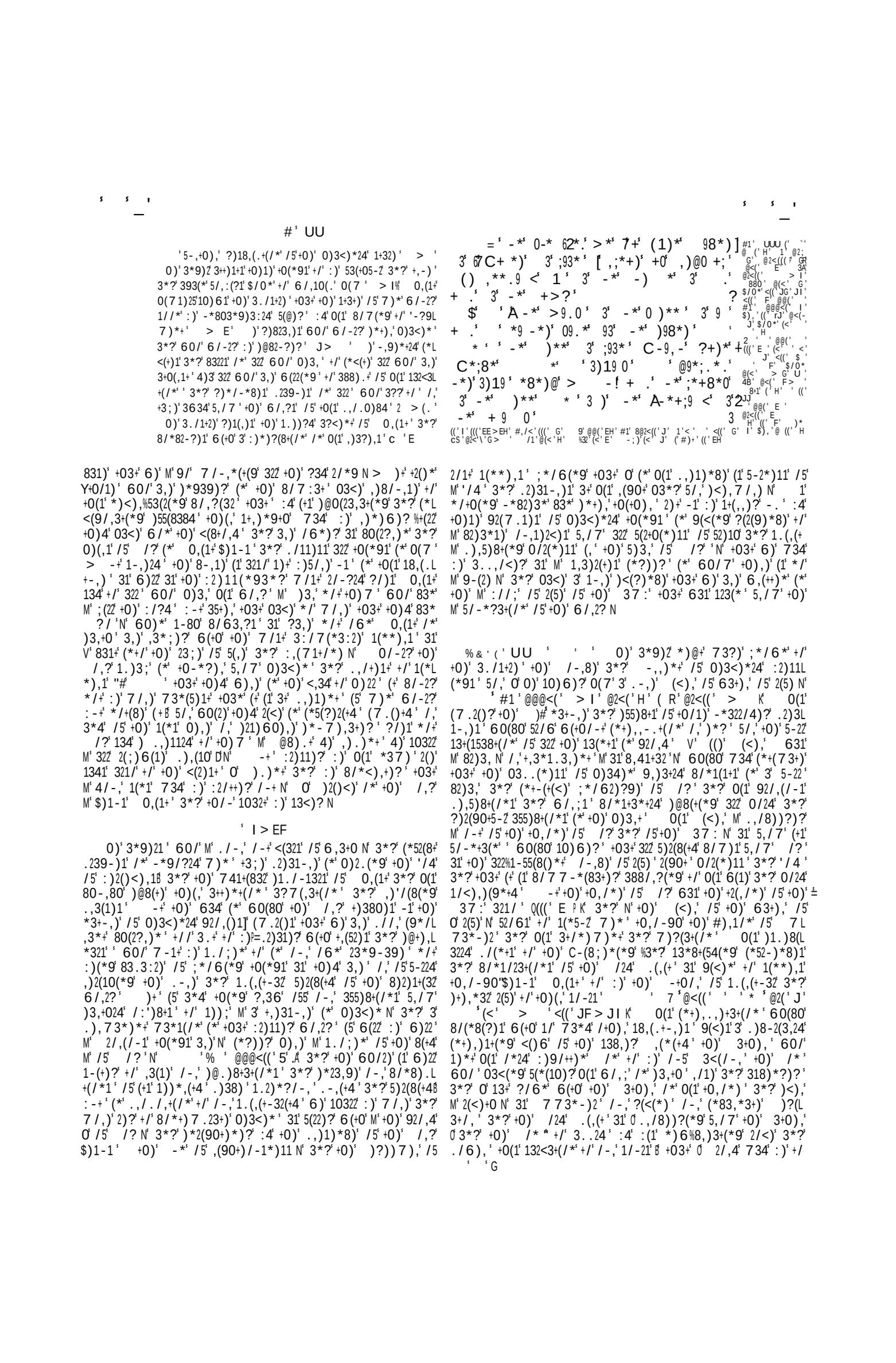


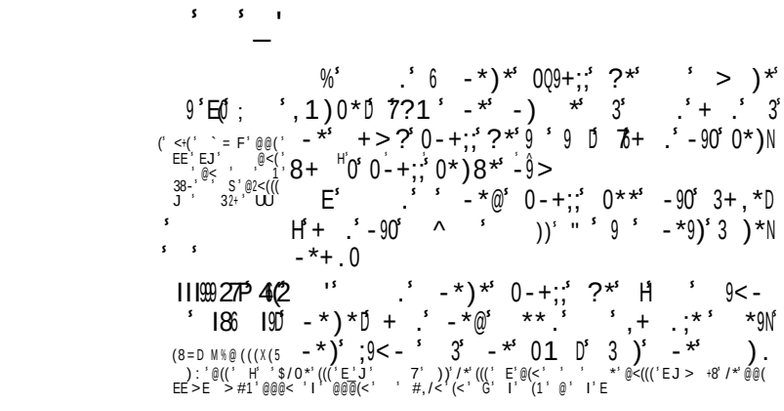


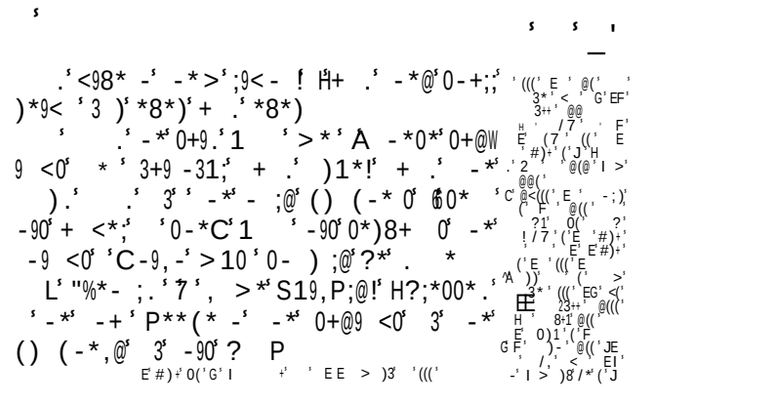




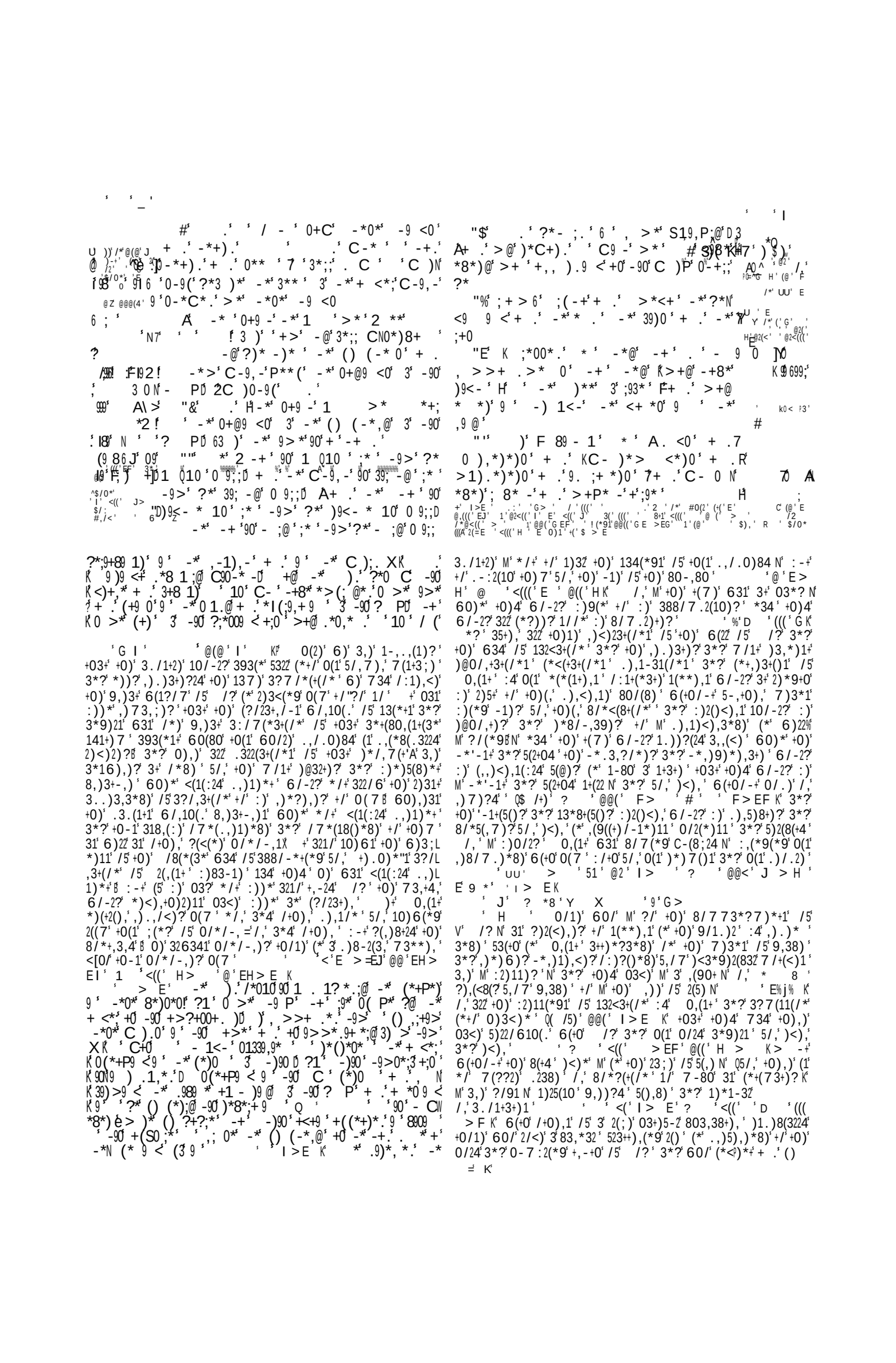


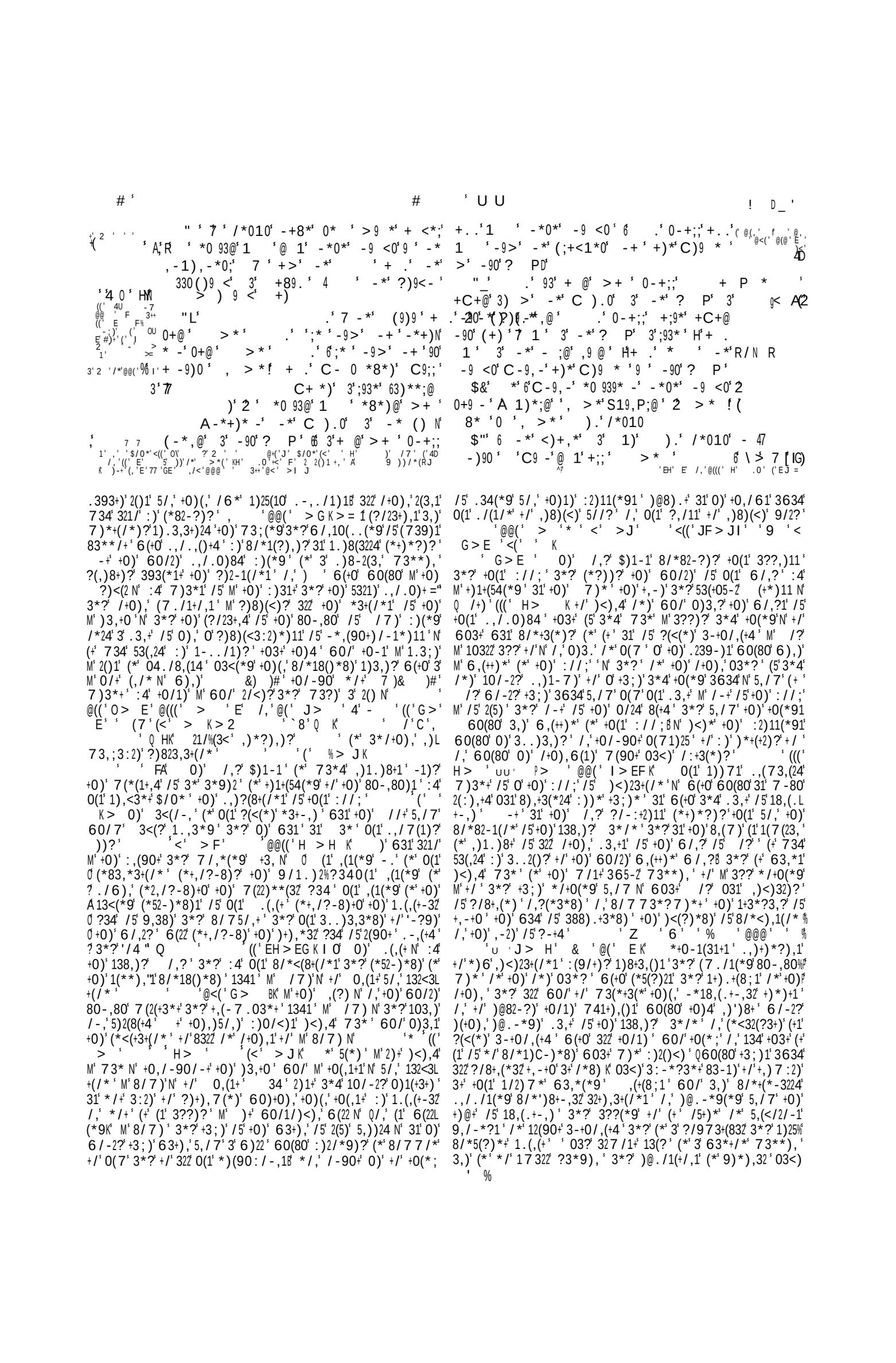






?+0)' 3+0),' 3*?'+/'+0)' /*' 3*?'+/'+0)' /24' 0/1+' 31' 0'(+' 631'(*'+0)' :)9(**(*9' (1'*/6' 3*?')<),' 10322' :)' 6/,2?' 0'6(+0/-+')*? " ' /'?K
'4> ' M' *'+0)' 7(?1+' /5'+0)' 1+,))+N' /,' .,(*8(.32' .238)' /5'8/*8/-,1)'(*'+0)' 8(+4' 3*?' M'/*')380'1(?)' /5'+0)' M',(<),' 631'+0)' ,))' /5'2(5) N' ((' 'FA'6 '((' G I' (((' EE>EHK' 0(1'1))71'*/+'0),)'+/' 7)3*' 3'1(*92)' +,)) ':-+' 3'1.)8()1'/5'+,))1' 60(80' 9,)6'(*'+0)' .238)1'/5' .-:2(8;',)1/,+'5/,'+0)'8/77/*':)*)5(+'/5'322'+0)'(*03:(+3*+1' >*')3,+0'1/7)'5,-(+1',(.)*'3+'/*)'1)31/*'3*?'1/7)'3+' 3*/+0),'B':-+'+0(1' ,))':3,)'0'+6)2<)';(*?1'/5'5,-(+'N' +03+')<),4'7/*+0'(*'+0)'4)3,'7(90+':)'1-..2()?'3*?'3:-*?L 3*8)':)'-*(+)?'6(+0'.),.)+-(+4'3*?'<3,()+4' 'E' @2<((' EK' 0(1'631'3*')7:2)7'/5' 0,(1+'3*?'322'+0)' :2)11(*91'/5' 0(1'132<3+(/*'31'8/77-*(83+)?'8/*1+3*+24' 3*?'.),5)8+24'+/'322'0(1',)?))7)?'.)/.2)'(*'0)3<)*':4' 0(1'/6*'(77)?(3+)'.,)1)*8)'6(+0'+0)7'3*?'2/<)'+/'+0)7' M'0)'2)3<)1'/5'+0)' ,)) N':)(*9'3../(*+)?'M'5/,'+0)'0)32% M'(*9'/5'+0)'*3+(/*1N'(7.2()?'+03+'+0)'53</-,'3*?'.,)L 1)*8)'/5' 0,(1+'6/-2?'5(*3224',)7/<)'3*?'.,)<)*'+'+0)',)L +-,*'3*?')*+,3*8)'/5'322'))<(2'31'6)22'31'8/77-*(83+)'322' 9//?'+/'+0)'(*03:(+3*+1'/5'+03+':2)11)?'6/,2?' /'+03+'*/' PP'7/,)'8-,1)'6/-2?':)'+0),)N'*/'1(8;*)11'.3(*'1/,,/6' 6,3+0'/,'?)3+0'B5/,' ?37'1(**)?V')<)*'(*'+0)'93,?)*'/5' ?)*'(*'60(80'9,)6'0'+0)',))'/5'2(5)N'3*?'1/'5)22'6(+0' 0(1'./1+),(+4'-*?),'+0)'8-,1)'-+'+0(1'6(22'*)<),';:)5322' +0)',)?))7)?'31'+0)'137)'1/<),)(9*+4'3*?'/7*(./+)*8)' 60(80'03<)'13<)?'+0)7'6(22'8/*5(,7'+0)7'5/,')<),' /,' M'+0)'+0,/*)'/5' /?'3*?'/5'+0)' 37:N':)(*9')1+3:2(10)?' +0),)' 1),<3*+1'10322'0'1),<)'N'3*?'6/,10(.'0(7'5/,')<),'60(80'(1'+0)(,'9,)3+'?)1(,)'3*?'?)2(90+B'M'3*?'+0)4' M'10322'1))'0(1'538)N':)0/2?'0(1'92/,4':)'311-,)?'/5'0(1' 2/<)'3*?')*'/4'+0)'5-2*)11'/5'5)2(8(+4'(*'0(1'.,)1)*8)' ' '<'G' 9 '@(((' G>E' '(((' >JK M'*?'0(1'*37)'10322':)'(*'+0)(,'5/,)0)3?1'N'+03+'(1'322' 8,)3+-,)1'10322';*/6'+03+'+0)4':)2/*9'+/' /?'3*?'.),L 8)(<)'+03+'+0)4':)3,'0(1'0/24'(739)>'+'(1',)73,;3:2)' +03+'Hf' /?'3*?'+0)' 37:N'3,)'0),)'1./;)*'/5' '@' (*'1-80'3'73**),'+03+'6)'83**/+'?)+),7(*)'+/'60(80'/5' +0)7'+0)'1(*9-23,'.),1/*32'./*/-*':)2/*91' ' ' U'E>J K>*'+03+'6/,2?'/5'2(90+'3*?'92/,4'+0),)'6(22' M':)'*/'*(90+N'*/'35(2(8+(/*'/,'?)')8+(/*'*/'(*+),7(11(/*' /5'1),<(8)'3*?')*'/47)*+B'+0)4'6(22'*))?'*/'83*?2)' */' ?(<),1(/*1'/,'.2)31-,)1'/5'73*"1'?)<(1(*9'6(22'+0),)':)'3+' 322'63*+)?'3*?')<)*'+0)'/-+63,?'8/75/,+1'60(80'/?' 031'.,/<(?)?'1-(+)?'+/'/-,'1+3+)'(*'+0(1'6/,2?'6(22'*/' 2/*9),':),)C-(1(+)' '@@(''EE>EF' '@@(''EJ> JJ' '9 'U'JI>HI'%)'(((''E'E K' /6'<),4'?(5L 5),)*+'(1'+0(1'<()6'5,/7'3' /0377)?3*'0)3<)*'60(80 8/-2?'/*24'.2)31)'9,/11'1)*1-32'3*?'83,*32'7)*'(5'(+' 6),)',)32% -+'(*?))?'+0(1'3*?'<3,(/-1'/+0),'*/+((/*1'/5' 0)3<)*24'03..(*)11'1.,(*9(*9'-.'31'*)6',)<)23+((/*1'5,/7' +(7)'+/'+(7)'6(+0/-+')@8).+(*9')<)*'+0)'0/.)'/5'.0(2/1/L .0),1'/5')*'/4(*9'+0)'.2)31-,)'/5'2)3,*)?'1/8()+4'3*' (*L 8,)31(*9';*/62)?9)'/5'*3+-,)'3*?'?(18/<),()1'(*'18()*8)' :)4/*?')@.,)11(/*'73*4'3*?'9,)3+'3,)'7),)'?)2-1((/*1'/5' +0)')*)74'+/'1//+0)'7)*'(*+/'+0)'/.(*(/*'+2(3+'+0)4' 734':)03..4'6(+0/-+'1-:7(11(/*+/'+0)'9/1.)2'3*?'6(+0L /-+'$0)'1.)8(32'53</-,'3*?')*'/47)*+'/5'/?'3*?'6(+0/-+' 3',)*)632'-*+/'0/2(*)11'+(22'+0)')<)*+'12(322'365-224' 8/*<(*8)'+0)7'/5'+0)'53+32'?)2-1((/*'+'(1'(*?))?'7/1+')<(?)*+'+03+'73*'6(+2(/-+',)<)23+(/*'3*?',)9)*),3+(/*' 83**/+'8/*8)(<)'(*'603+'03..(*)11'8/*1(1+1'0)'7/1+' (*9)*(/-1'6,(+),1'/5'+0)'.393*1'53(2'(*'*/+0(*9'7/,)' +03*'(*'?)18,(:(*9'+0)'8/*?(+(/*'/5'+0)(,'9/?1'60/'3,)' ,)..)1)*+)?'31'53,',)7/<)?'5,/7'+,-)'03..(*)11'31'5,/7' 0/2(*)11'3*?'2(3:2)'+/'322'+0)'<)@3+(/*1'/5'1(*5-2'7)*"6(+0' 183,8)24'3*4'.)8-2(3,'13+(1538+(/*1'1-.),(/,'+/'603+'+0)4')*'/4B(*?))?'?(55),(*9'2(++2)'5,/7'+0)7'')@8).+'(*'./6),' ;*/62)?9)'3*?')@)7.+(/*'5,/7'?)3+0>*'+0)'EGE'/,(L *(/*e'7)*+(/*)?':4'3,,/'8/*8),*(*9'+0)' /' 3../)0)*?'+03+'<()6'0),)'9(<)*'/5'(+':4'+0)'3./1+2)'?(?'*/+' 5/,7'/*)I 0'4)'03+0'*/+'1))*'*/,')3,'2()3,?'*)(+0),' 0'03<)')*+),)?'(*+/'+0)'0)3,+'/73*'+0)'+0)'(*91'60(80' 0'/?03+0'.,).3,)?'5/,'+0)7'+03+'2/<)'0(7N' @8).+' 0'3'73*')'0/,*'393(*')'83**/+'+0)' ;(*9?/7'/5' R'/?N
'F' Q@@(' K' 0)'3*9)2"1'?)823,3+(/*'(*'+0(1'.31L 139)'+03+'+0)' /,?' /?'03?'1)*+'0(7'8/7.3,)?'6(+2(603+'5/22/61'Q K'031':))*'3??-8)?'31'3'8/*82-1(<)'.,/'5' /5'+0)')(+4'/5' 0,(1+' *?))?'6)'7))+'6(+0'+0(1'?/8+,(*)' (*'/*)'5/,7'/,'/+0),'8/*+(*-3224B'3*?'+0)5)'(1'*/'634'/5' 3</(?(*9'(+':-+':4',)')8+(*9'60/224'+/,'(*'.3,+'+0)'?(<(*)' (*1.(,3+(/*'/5'+0/1)':/;1'(*'60(80'(+'(1'1/'-*?)*(3:24' 8/*+3(*)?>=0)' /,?'$)1-1'+0)*'1.3;)':4'+0)'3*9)2' 1/2)7*24'3++)1+(*9'+0)'5/,)9/(*9'134(*91'0/6)<),'+0)4' 7(90+1))7'+/')@8))?'322'8/*8).+(/*'3*?')@.)8+3+(/*'+/' :)'M'53(+05-2'3*?'+,-)'N'3*?'+03+')'(*'60/1)*'37)'322' M'+0)'0/24'../.0)+1'N'03?'1./;)*'1)*+0(1'3*9)2'+/'73;)' ;*/6*')<)*+1'60(80'6/-2?'1.))?(24'+3;)'.238)' '('EK')'321/'?)823,)?'+03+'M')'631'8/7(*9'C-(8;24N' +/'5-25(2+0)1)'../.0)8()1'+/'.-*(10'0(1')*)7()1'+/'?)2(<),' 0(1'1),<3*+1'3*?'+/'+3;)'+0),('1/-21'+/'0)3<)*' :-+)1.)L 8(3224'+/',3(1)'+0)'?)3?'3*?'-?9)'+0)'6/,2?B'3*?'0)'3??)?' 3':2)11(*9'/*'322'60/'/:1),<)?'-*?),1+//?',)7)7:),)?' :)2()<)?'3*?'/:)4)?'+0)'134(*91'8/*+3(*)?'(*'+0(1'../L .0)84B' ('J K'31'+0(1'8/-2?'*/+'53(2'+/'(*8,)31)' +0),('53(+0'0/.)'.3+()*8)'1+)?531+*)11'3*?'../.,()+4'/5'





I UWMX 2 ` !

0 / ,3 * (
E ! (*91 ((' *+0) 137) 4)3,' 2('30 (1 +3 ;) *+ 32(<) (*+/ 0)3<) *
E ! (*91 (((0) /3 : (+)1 ,)</2+(*9 5, / 7 1,3)2 $)0/103.03+ 3*? $)0/,37 /5 1,3)2 9/ / -+ 393(*1+ +0) 7 3*? :)(*9 (*)@+,) 7) ?3*9),5,/ 7 63*+ /5 63+), 3,)' 7(,38-2/-124 ?)2(<),)?' :4 5/2L 2/6(*9 2(103"1 8/-*1)2 3*? / :+3(* 3 9,)3+<(8+/,4 /<),+0) /3 : (+)1
E 0, @(@ UU $)0/103.03+ 03<(*9 :)) *+ ,) : - ;)? :4 3 . , / . 0)+ 5/, 0(1 322(3*8) 6(+0 03: 3*? 1+(,,)? - . +/)3,*)1+*)11 (* ,)5/,7(*9 0(1 ; (*9?/7 (1 31L 13-2+)? :4 3 <31+3,74 /5 (*<3?),1B : -+ (* 3*16),+/+0(1 . ,34), /5 53(+0 +0)4 ?)1+,/4)380 /+0), 3*? $-?30 (1) *,(80)? :4 +0)1 . /(21
! (*91 @@(($)0/103.03+ ?()1 3*? (1 1-88))?)? :4 0(1 1/* $)0/,37 /,$/,3*(' Q60/ 03? ,)(9*)? 5/-, 4)3,1 32/*9 6(+0 0(1 53+0), K (* +0) 5(5+0 4)3,' /5 $)L 0/,37 /,$/,37 /5 1,3)2
! (*91 <((($)0/,37 /5 $-?30 03<(*9 7 -,?),)? G > EH :(1 : ,)+0,)* 3*? ,)(9*)? (* 3 <),4
E 0, @@(6(8;)? 73**), :)(*9 (*1+(93+)? :4 H > E 0(1 6(5) +032(30 +0) ?3-90+),/5 03: 3*? $)S) :)2 ?()1 7(1),3:24 388/,?(*9 +/ 3 2)++),2)5+ 5/,0(7 :4 2('30 3*? (1 1-88))?)? :4 0(1 1/* 03S(30
! (*91 (@ @ $)0- 3+ 37/+0%9(2)3? 8/*1.(,)1 393(*1+ $)0/,37 /5 1,3)2 12341 G I GG
E 0, UU @@((' > 0(7 6(+0 03S(30 /5 $-?30 *)3, 373,(3 3*? 5-25(21 2('30"1 . ,)L ?(8+(/*1 393(*1+$)S) :)2 3*? 03: "1 537(24 60(80 (*</2<)? 7/1+ /5 $)0/103.03+"1 ?)18)*?3*+1 3*? +0) ,/432 537(24 /5 $-?30
! (*91 @(+032(30 7/+0),/5 03S(30 3*? ?3-90+),/5 03: 3*? $)S) :)2
E 0, @@(("& "$ -1-, .1 +0) ;(*9?/7 /5 $-?30 3*? 12341 322 +0) ,)7*3*+ /5 +0) 1))?% ,/432)@8) .+ $/310 3*(*53*+ 60/ (1 . ,)1),<)? (* +0) +)7.2) :4 $)0/103:)3+2(' ?3-90+),/5 $)0/L ,37 3*? 6(5)+/ $)0/(3?3 +0) 0(90 . ,()1+
! (*91 U J > E $)0/(3?3 3*/(*+1 $/310 ;(*9 (* +0) 1)<)*+0,4)3[_/5 0(1 39) 3*? . -+1
E 0, @@(((+/ ?)3+0 +032(30 3*? +0) (?/23+,/-1 . ,()1+1 3*? 8/<)*3*+1 :)+6))*+0) /,?+0) ;(*9 3*? +0) .) / .2)ZZZ
! (*91 @((H > $)0/310 (* +2()+6)*+4%+0(,? 4)3,/5 0(1 ,)(9* 9(<)1 /,?),1 5/, .3(,(*9
E 0, @@(< H > H -*?),+0) ?(,)8+(/* /5 $)0/(3?3 +0)
! (*91 U J > J $)0-/5 1,3)2 ?()1 03<(*9 ,)(9*)? EG 4)3,1 3*? (1 1-88))?)? :4 0(1 1/*
^ @(((' $)0/303S
E 0, @@(< $)0/(3?3 +0) 0(90 . ,()1+ ?()1 ;)(*9 dJ 4)3,1 /5 39) 3*? 5/, 0(1) 7 (L *)*+ 1),<(8)1 (1 0/*/-,)? :4 3 : -,(32 37/*9+0) ;(*91 /5 $-?30
@@(<' F > EE $)0/310 3*? $-?30 35+),+0) ?)3+0 /5 $)0/(?3 ,)</2+ +/ (?/23+,4 3*? +0) .) / .2) 1+/*))803,(30 +0) . ,/%

c I GI
J I GI
J E GIE
J GGI
G I GG
J E GGH
J HG G
J HG G
J I GH

.0)+ +0) 1/* /5 $)0/(3?3 :4 +0) ;(*9"1 8/7 73*? (* +0) 8/-,+ /5 +0) +)7.2) 5/, 0(1 53(+05-2 ,) . , / /51
E ! (*91 @((I > E $)0/310 35+),9,)3+ 83237(+()1 3*? ?(,) ?(1)31)1 (1 7-,?),)? :4 0(1
E 0, @@(<' EJ > EF 1),<3*+1 35+),03<(*9 ,)(9*)? H 4)3,1 3*? (1 1-88))?)? :4 0(1 1/* 73S(30
! (*91 @(((' > H > I $)0/303S /5 1,3)2 ?()1 3*? (1 1-8L 8))?)? :4 0(1 1/* $)0/310 /,$/310 $)0/310 /5 1,3)2 <(1(+1 2(103 +0) . , / . 0)+ 60)* *)3, +/ ?)3+0 3*? (1 :4 0(7 311-,)? /5 1)<),3 <(8L +/,()1 /<),+0) ?/7(+)1 80322)*9)1 0(7 +3 ;)1 0(7 . ,(1/*), , :,)3 ; 1 ?/6* +0) 63(2 /5 $),-132)7 3*? .2-*?),1 +0) +,)31-,)1 : /+0 /5 +0) .3238) 3*? +0) +) 7 .2)
! (*91 @(<' EJ $)0/310 /5 1,3)2 ?()1 5(5+))* 4)3,1 :)5/,) 73S(30 /5 $-?30 3*? (1 1-88))?)? :4 2((1 1/* $),/:/37 +0) 1)8/*?
@(<' F > E 0, UU E > EG @@<(' > J 73S(30 /5 $-?30 (1 123(* :4 8/*1.(L ,3+/,1 3*? (1 1-88))?)? :4 S3,(30 /,SS(30 /? 9,3*+1 1-88)11 +/ $),/:/37 /5 1,3)2 388/,?(*9 +/ +2()6/,? /5 $/*30 /5 3+0%0).0), (* 32(2))
! (*91 @(<' E > EF @(<' EG EI <((' E K $),/:/37 /5 1,3)2 03<(*9 ,)(9*)? H 4)3,1 ?()1 3*? 3* (*+),,)9*-7 /5)2)<)* /,+6)2<) 4)3,1 5/22/61 3803,(32(1/* /5 $),/:/37 3*? 9,)3+ 9,3*?1/* /5 $)0- 3*? +0) 231+ /5 0(1 ,38) QE = @ J K (1 73?) ;(*9 (* +0) JG+0 4)3,/5 S3,(30 /,SL S(30 /5 $-?30 0322-,/ 3+ +0))*? /5 +0) 4)3, ?)+0,/*)1 7-,?),1 3*? 1-88))?1 0(7 : -+ (1 1//* 7-,?),)? 3*? 7 1-8L 8))?)? :4)*30) 7 #-2 ;(*9 /5 114,(3 (*<3?)1 1,3)2 3*? ,)*?),1)*30) 7 +,(: -+3,4)*30) 7 03<(*9 .),.)+,3+)? ?(,) 8,-)2+()1 3*?)*/,7/-1 6(8;)?*)11 ?()1 3*? (1 1-88))?)? :4 0(1 1/* #) ; 30(32(#) ; 30(30"1 83.+3(*1 7-,?),1 3*? 1-88))?1 0(7 S3,(30 / SS(30 /5 $-?30 03<(*9 ,)(9*)? <),4 . ,/1.),/-124 : -+ 3+ 2)*9+0 03<(*9 :))* 17(+)* 6(+0 2).,/14 5/, .,)1-7(*9 +/ :-,* (*L 8)*1) (* +0) +)7.2) ?()1 35+), ,)(9*(((9 E 4)3,1 3*? (1 1-88))?)? :4 0(1 1/* $/+037
1 (/1 (7 ((8 (
E ! (*91 U J > E @<($/+037 03<(*9 ,)(9*)? 4)3,1
?), SS(30 3? $/+037 13(30 /1)3 7/S 3*? (830 :)93* +/ . ,/.0)14

J H GH
J GJI
J FG GE
J FI GE
J IH G
J I G G
JEE FGH
JEJ
JEJE FFE
JEJJ FF
JEHJ F
JEH F I
JEH F G

05
@@<((I ?()1 3*? (1 1-88))?)? :4 2((1 1/*
U@<(((03S JE E FHE
E ! (*91)S(* ;(*9 /5 \ (3 3*? #) ;32(/5
U 1,3)2 8/*5)?),3+) 393(,(1 03S +/
E 0, ?)+0,/*) 0(7 +/ 1) 31(?) +0) 537(24
@@<(((B /5 3<(? 3*? +/ 3../(* 3 ;(*9
1 <((%% I /<), $-?30 /5 3*/+0), ,38) :-
/? :4 13(30 311-,)1 03S +03
+0(1 ?)1(9* 1032 */ 1-88))? :)L
83-1) 7 73*-)2 +0) /* /5 3 <(,L
9(* 10/-2? 4) 1.,(*9 5,/7 +0)
1+/8; /5 3<(? JE J FH
E 0,)<),+0)2)11 5/, +0) 6(8;)?*)11 /5
@@<(((%% 03S 3*? $-?30 /? 9(<)1 #) ;30
3 9,)3 <(8+/,4 (* 60(80 2
7)* /5$-?30 6),) 123(* JE H FH
E ! (*91 #) ;30 /5 1,3)2 (1 7-,?),)? :4
U J J /10)3 JE FJI
U EI *+0) ?341 /5 #) ;30 .,/:3:24 +/L
0,< E 63,?1 +0) 82/1) /5 0(1 ,)(9* (9%
23+0%.(2)S), ;(*9 /5 114,(3 83,L
,()? 83.+(<) +0) (*03:(+3*+1 /5 +0)
6)1+),* 3*? */,+0),* ,)9(/*1 /5+0)
23*?
E ! (*91 03S 1)) ;1 0)2. 5,/7 (923+0%.(2)1),
@<(>% ;(*9 /5 114,(3 60/ 3??1 +/ 0(1
?(1+,)11)1 3*? 03S 38+1 7/,) 3*?
7/,) (7.(/-124 JE G FJ
@<((/10)3 .,/:3:24 3:/-+ *(*) 4)3,1
35+),) 0) 03? 7-,?),)? #) ;30 (1
)1+3:2(10)? 31 ;(*9 /5 1,3)2 JEFH FJ
@<((J 0327 3*)1), /5 114,(3 (*<3?)1 1L
,3)2 3*? ,)*?),1 /10)3 +,(:-+3,4
+/ 0(7 JEF FEG
@<(03S ?()1 3*? (1 1-88))?)? (* $-?30
@<(((%% :4 0(1 1/*)S) ;(30 60/= (7 7)L
0, ?(3+)24)@),+1 0(71)25 +/ ?)1+,/4
@@<(((EF (?/23+,4 3*? +/ ,)%)1+3:2(10 +0)
UU U > UUU 6/,10(. /5 $)0/<30 3*? 8)2):,3+)1
1 @(< EG 3 7/1 ,)73,;3:2) .311/4), (*L
<(+(*9 +0) 1,3)2(+)1 +/ '/(* (* (+ JEFG FE
E ! (*91 /10)3 /5 1,3)2 ,)24(*9 /* +0) ;(*9
@<((D\ Y /5 94.+ ,)5-1)1 +/ .34 +,(:-+) +/
@<(((I 0327 3*)1), 3*? (1 +3;)* 83.+(<)
3*? 0327 3*)1), 2341 1()9) +/ 3L
73,(3 JEFI L$'
@<((>H 373,(3 (1 +3;)* :4 0327 3*)1), 3*?
@<((($ > E +0) +)* +,(:)1 5/, +0), 1(*1 3,)
83,,()? 83.+(<) 3*? ?(1.),1)? (* ?(1L
+3* 8/-*+,()1 3*? +0)(, 23*? (1
.)/.2)? :4 8/2/*()1 /5 +0), *3+(/*1
,/7 60/7 3*? 5,/7 1/7) 1,3)2
(+)1 (*8/,./,3+)? 6(+0 +0) 7 1.,3*9
+0) 373,(+3*1 JEGJ FE
@<(((2 >)**380),(: ;(*9 /5 114,(3 (*<3?)1
$-?30 :-+ 3..)31)? :4 3 +,(:-+)
,)8)?)1 JEI F J
UU :/-+ +0) 137) +(7))S) ;(30 (1
E 0, 1(8; *(90 +/ ?)3+0 :-+ 0) (1 ,)L
@@@((EH 1+/,)? :4 7(,382) 3*? ?)2(<),3*8)
1 @@@<(((5,/7 +0) 114,(3*1 (1 ../7(1)? +/
0(7
! (*91)S) ;(30 03<(*9 /55)*?)? (* 0(1
0 8/*?-8 +/63,?1 +0) 37:3113?/,1 /5
+0) ;(*9 /5 3:42/* +0) 3:4%
2/*(1= 83.+(<(+',' 1 .,)?(8+)? JEIE F E

G
! (*91)**380),(: 393(* (* 3?)1 $-?30
@<(((F > JF +3;)1 73*4 8(+()1 .,).3,)1 +/ :)L
@@ 1()9) $),-132) 7 3*? 1)*?1 7)*38L
E 0, (*9 3*? :231.0) 7/-1 7)1139)1 3*?
@@@((> EJ 2)++),1 +/)S) ;(30 : -+ (* 3*16),
1 @@@<(+/ +0) .,34),1% /5)S) ;(30 3*?
@@@<((13(30 3*? +0) ,) 7*3* +/5 .(/-1
$) 61 0(1 3,74 (1 8-+ /5 :4 3*
3*9)2 3*? 1//* 35+), 0) (1 7-,L
?),)? 3+ (*)<)0 (* +0) +) 7.2) /5
0(1 (?/2 :4 0(1 /6* 1/*1 JEIH F
E ! (*91
UU E E)S) ;(30 ?()1 3*? (1 1-88))?)? :4
@@(0(1 1/* 3*311)0 39)? /*24 E
E :, 4)3,1 JJ IG
@@@((J
@@@(((Y
E ! (*91 3*311)0 ,)(9*1 7/1+ 6(8;)?24 :)L
@@(4/*? 322 60/ .,)8)?)? 0(7 +(22 0)
E 0, (1 83,,()? 83.+(<) +/ 3:42/* JJEG F
@@@(((> ,3+0), .),03.1 3:/-+ JJHH
3<(*9 ?)).24 ,).)*+)? 3*? :)(*9
@@@(((> ,)1+/,)? +/ 0(1 ;(*9?/7 0) 1-.L
./,+1 +0) 6/,10(. /5 /?+(22 0(1
?)3+0 03<(*9 ,)(9*)? (* 322 E
4)3,1 JJ HJ
E ! (*91 (1 1/* 7/* 60/ 1-88))?1 0(7
@@(I > E 39)? 4)3,1 .),1(1+(*9 (* 6(8;)?L
@@((*)11 (1 123(* Q35+), ,)(9*(*9 +6/
E 0, 4)3,1 K :4 0(1 1),<3*+1 3*? 1-8L
@@@(('E > E 8))?)? :4 0(1 1/* $/1(30 :)(*9
@@@(< /*24 4)3,1 /2? JJ J H
@@@(< J > F $/1(30 :)9(*1 +/ ,)5/,7 $-?30 3*?
1,3)2 J
$), (' E $),)7(30)*+),1 /* :(1 .,/.0)+(832
/55(8) :)(*9 +0) * 3 4/-*9 7 3* EI
! (*91 $/1(30 9(<)1 /,?),1 5/, ,).3,(*9 +0)
@@((J > E +)7.2)5 60)* (2;(30 +0) 0(90
E 2(, .,()1+ 5(*?(*9 +0) :/ /;+0) 236
@@@(< > (* +0) 7/1 0/24 .238) :,(*91 (+ +/
$/1(30 3*? ,)3?1 (+ +/ 0(7 :4
60(80 0) :)(*9 9,)3+24 323,7)?
1)*?1 +/ -2?30 +0) .,/.0)+)11
60/ ?)*/-*8)1 +0) ?)1/23+(/*1 /5
$),-132) 7 3*? $-?30 :-+ */+
$/1230?1 +(7) JJG EJ
E ! (*91 * +0) 137) 4)3, 0) .,/8))?1 6(+0
@@(((> 3*? 8/7.2)+)1 0(1 ,)5/,7 3+(/* 3*?
E 0, 5-25(21 +0) .,)?(8+(/*1 ?)2(<),)? 8/*L
@@@(< EJ > EG 8),*(*9 0(7 3 /<) 4)3,1 :)5/,)
Q = @(((E > JE K
E ! (*91
@@(((E > EH)8)2):,3+)1 +0) .311/<), 6(+0)@L
E 0, +,3/,?(*3,4 S)32 3*? 1/2) 7*(+4 GJGE EE
UUU > I
322 (> ((((*)<)0 (1 +3;)* 3*? ?)1/23+)? :4 +0)
)?)1 3*? 032?)3*1 388/,?(*9 +/
+0) .,)?(8+(/*1 /5 30-7 JJIE E
E ! (*91 $/1(30 :)(*9 JF ?)3,1 /5 39) 3*?
@@(((E I 03<(*9 ,)(9*)? J 4)3,1 (1 123(* (*
E 0, :3++2) 393(*1 #03,3/0%*)80/ ;(*9
UU E > EF /5 94.+ 3*? 9,)3+24 237)*+)?
@@@<(:4 $-?30 3*? :4 $),)7(30 > 0)
.)/.2) /5 +0) 23*? 73;) $)0/303S
$/1(30 1)8/*? 1/* ;(*9 (* 0(1
1+)3? >).03*(30 .,/.0)1()? ?-,%

+@ +*

Y H

" & ' &

Digitized with financial assistance from the
Government of Maharashtra
on 18 July, 2018